

Jan please.

Access DB#

79991

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Lynda Guo Examiner #: 79756 Date: 11/12/02  
Art Unit: 1651 Phone Number: 301-605-1200 Serial Number: 09/979,507  
Mail Box and Bldg/Room Location: 11B01 (cm1) Results Format Preferred (circle): PAPER DISK E-MAIL  
office: 11A16

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\*\*\*\*\*  
Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: "Use of collagenase 3 for detecting destructive diseases of the ..."

Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Filing Date: \_\_\_\_\_

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Jan Delaval  
Reference Librarian  
Biotechnology & Chemical Library  
CM1 1E07 - 703-308-4498  
jan.delaval@uspto.gov

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Online Time: <u>+ 75</u>	Other _____	Other (specify) _____

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STRUCTURE FILE UPDATES: 12 NOV 2002 HIGHEST RN 473382-28-4  
DICTIONARY FILE UPDATES: 12 NOV 2002 HIGHEST RN 473382-28-4

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Experimental and calculated property data are now available. See HELP  
PROPERTIES for more information. See STNote 27, Searching Properties  
in the CAS Registry File, for complete details:  
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d ide can tot

L99 ANSWER 1 OF 5 REGISTRY COPYRIGHT 2002 ACS  
RN 176742-44-2 REGISTRY  
CN Collagenase 3, pro- (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN Pro-matrix metalloproteinase 13  
CN Pro-MMP-13  
CN Procollagenase 3  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: BIOSIS, CA, CAPLUS, TOXCENTER

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
17 REFERENCES IN FILE CA (1962 TO DATE)  
18 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:245992

REFERENCE 2: 137:183519

REFERENCE 3: 137:72769

REFERENCE 4: 136:367781

REFERENCE 5: 135:329847

REFERENCE 6: 133:307319

REFERENCE 7: 133:234253

REFERENCE 8: 132:209

REFERENCE 9: 130:180849

REFERENCE 10: 129:121650

L99 ANSWER 2 OF 5 REGISTRY COPYRIGHT 2002 ACS

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CM1 1E07 = 703-308-4498  
[jan.delaval@uspto.gov](mailto:jan.delaval@uspto.gov)

RN 175449-82-8 REGISTRY  
CN Collagenase 3 (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN Matrix metalloprotease 13  
CN Matrix metalloproteinase-13  
CN MMP-13  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: BIOSIS, BIOTECHNO, CA, CAPLUS, EMBASE, TOXCENTER, USPAT2,  
USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
605 REFERENCES IN FILE CA (1962 TO DATE)  
5 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
616 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:294965  
REFERENCE 2: 137:293342  
REFERENCE 3: 137:292873  
REFERENCE 4: 137:290041  
REFERENCE 5: 137:289309  
REFERENCE 6: 137:288625  
REFERENCE 7: 137:279084  
REFERENCE 8: 137:278978  
REFERENCE 9: 137:276485  
REFERENCE 10: 137:274844

L99 ANSWER 3 OF 5 REGISTRY COPYRIGHT 2002 ACS

RN 161384-17-4 REGISTRY  
CN Proteinase, matrix metallo-, MT-MMP-1 (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN Matrix metalloprotease 14  
CN Matrix metalloproteinase 14  
CN Matrix metalloproteinase MT 1  
CN Matrix metalloproteinase MT-MMP-1  
CN Matrix metalloproteinase MT1-MMP  
CN Membrane type 1 matrix metalloproteinase  
CN Membrane type-1 matrix metalloprotease  
CN Membrane-type matrix metalloprotease 1  
CN Membrane-type matrix metalloproteinase 1  
CN Membrane-type matrix metalloproteinase MT1-MMP  
CN Membrane-type metalloproteinase MT1-MMP  
CN MMP-14  
CN MT-MMP1  
CN MT1-MMP  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: AGRICOLA, BIOSIS, CA, CAPLUS, CIN, TOXCENTER, USPAT2,  
USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*  
616 REFERENCES IN FILE CA (1962 TO DATE)

3 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
624 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:292889  
REFERENCE 2: 137:292189  
REFERENCE 3: 137:277060  
REFERENCE 4: 137:276734  
REFERENCE 5: 137:274906  
REFERENCE 6: 137:273251  
REFERENCE 7: 137:260925  
REFERENCE 8: 137:260888  
REFERENCE 9: 137:260588  
REFERENCE 10: 137:259321

L99 ANSWER 4 OF 5 REGISTRY COPYRIGHT 2002 ACS

RN 156656-98-3 REGISTRY

CN Collagenase (human clone I9c9 isoenzyme 3 reduced) (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 21: PN: WO0166766 SEQID: 21 unclaimed protein  
CN Collagenase 3 (human cDNA)  
CN Collagenase 3 (human clone T-coll)  
CN Collagenase-3 (human breast carcinoma clone I9c9)  
CN Collagenase-3 (human T cell (lymphocyte) clone T-coll)  
FS PROTEIN SEQUENCE  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: CA, CAPLUS, USPATFULL

\*\*RELATED SEQUENCES AVAILABLE WITH SEQLINK\*\*

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

\*\*\* USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE \*\*\*  
4 REFERENCES IN FILE CA (1962 TO DATE)  
4 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 135:252789  
REFERENCE 2: 128:306745  
REFERENCE 3: 126:259888  
REFERENCE 4: 121:131123

L99 ANSWER 5 OF 5 REGISTRY COPYRIGHT 2002 ACS

RN 146480-35-5 REGISTRY

CN Gelatinase A (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 72 kDa Gelatinase  
CN 72 kDa Gelatinase type A  
CN 72,000-Mol.-wt. gelatinase  
CN 72,000-Mol.-wt. type IV collagenase  
CN Collagenase IV  
CN Collagenase type IV



CN E.C. 3.4.24.24  
CN Matrix metalloprotease 2  
CN Matrix metalloproteinase 2  
CN MMP 2  
CN Type IV collagen metalloproteinase  
CN Type IV collagenase  
CN Type IV collagenase/gelatinase  
MF Unspecified  
CI MAN  
SR CA  
LC STN Files: ADISNEWS, AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO,  
CA, CAPLUS, CEN, CIN, EMBASE, PROMT, TOXCENTER, USPAT2, USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

3008 REFERENCES IN FILE CA (1962 TO DATE)  
9 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
3029 REFERENCES IN FILE CAPLUS (1962 TO DATE)

REFERENCE 1: 137:294972  
REFERENCE 2: 137:292889  
REFERENCE 3: 137:292888  
REFERENCE 4: 137:292871  
REFERENCE 5: 137:292752  
REFERENCE 6: 137:292728  
REFERENCE 7: 137:292723  
REFERENCE 8: 137:292536  
REFERENCE 9: 137:292502  
REFERENCE 10: 137:292435

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FILE LAST UPDATED: 12 Nov 2002 (20021112/ED)

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L98 ANSWER 1 OF 28 HCAPLUS COPYRIGHT 2002 ACS  
 AN 2002:676215 HCAPLUS  
 DN 137:215820  
 TI Preparation and application of antibodies to neoepitope generated by  
**collagenase** cleavage of type II collagen  
 IN Billinghamst, R. Clark; McIlwraith, C. Wayne  
 PA Colorado State University Research Foundation, USA  
 SO PCT Int. Appl., 32 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C12Q  
 CC 15-3 (Immunochemistry)  
 Section cross-reference(s): 9

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002068675	A2	20020906	WO 2002-US5790	20020225
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI US 2001-271208P P 20010223

AB A polyclonal anti-neoepitope antibody (234CEQ) is described that recognizes **collagenase**-cleaved, type II collagen fragments in horses and dogs. The antibody **detects** increases in type II collagen cleavage in diseased equine articular **cartilage**. Using this antibody, a method is provided for **detecting cartilage** degrdn. in the **joints** of horses.

ST antibody type II collagen cleavage product

IT Antibodies  
 RL: ARG (Analytical reagent use); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (234CEQ; to neoepitope generated by **collagenase** cleavage of type II collagen)

IT **Arthritis**  
 (antibody **detection** of **collagenase** cleavage of type II collagen in)

IT Interleukin 1  
 RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)  
 (antibody **detection** of **collagenase** cleavage of type II collagen induced by)

IT Cattle  
 Dog (Canis familiaris)  
 Horse (Equus caballus)  
 Mouse  
 Rat  
 (antibody **detection** of **collagenase** cleavage of type II collagen of)

IT **Cartilage**  
 (articular; antibody **detection** of **collagenase** cleavage of type II collagen in)

- IT Immunoassay  
(enzyme-linked immunosorbent assay; antibody **detection** of  
neoepitope generated by **collagenase** cleavage of type II  
collagen)
- IT Immunoassay  
(immunoblotting; antibody **detection** of neoepitope generated  
by **collagenase** cleavage of type II collagen)
- IT **Diagnosis**  
(immunodiagnosis; of **arthritis** in horse and dog by antibodies  
to neoepitope generated by **collagenase** cleavage of type II  
collagen)
- IT Immunoassay  
(immunohistochem.; antibody **detection** of neoepitope generated  
by **collagenase** cleavage of type II collagen)
- IT Epitopes  
(neo-; of type II collagen generated by **collagenase** cleavage  
is **detected** by antibodies)
- IT Collagens, biological studies  
RL: ADV (Adverse effect, including toxicity); ANT (Analyte); DGN  
(Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES  
(Uses)  
(type II; antibodies to neoepitope generated by **collagenase**  
cleavage of)
- IT **175449-82-8, Collagenase 3**  
RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)  
(antibody **detection** of cleavage of type II collagen by)
- IT **161384-17-4, MMP-14**  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(antibody **detection** of cleavage of type II collagen by)
- IT 454174-56-2  
RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological  
study); USES (Uses)  
(in prepn. of antibodies to neoepitope generated by **collagenase**  
cleavage of type II collagen)
- L98 ANSWER 2 OF 28 HCAPLUS COPYRIGHT 2002 ACS  
AN 2002:422769 HCAPLUS  
DN 137:245992  
TI Characterisation of the cell type-specificity of **collagenase**  
**3 mRNA** expression in comparison with **membrane**  
type 1 matrix **metalloproteinase** and **gelatinase**  
**A** in the **synovial membrane** in  
**rheumatoid arthritis**
- AU Petrow, P. K.; Wernicke, D.; Westhoff, C. Schulze;  
Hummel, K. M.; Brauer, R.; Kriegsmann, J.; Gromnica-Ihle, E.;  
Gay, R. E.; Gay, S.
- CS Institute of Pathology, University of Jena, Jena, D-07740, Germany  
SO Annals of the Rheumatic Diseases (2002), 61(5), 391-397  
CODEN: ARDIAO; ISSN: 0003-4967  
PB BMJ Publishing Group  
DT Journal  
LA English  
CC 14-11 (Mammalian Pathological Biochemistry)  
Section cross-reference(s): 3
- AB Objective: To study the pattern and cell type-specificity of  
**collagenase 3, membrane-type 1 matrix**  
**metalloproteinase (MT1-MMP)**, and  
**gelatinase A mRNA** expression in the  
**synovial membrane** in **rheumatoid**  
**arthritis (RA)**. Methods: The **mRNA** expression of  
**collagenase 3, MT1-MMP**, and  
**gelatinase A** was characterized by northern blot anal.,  
reverse transcriptase-polymerase chain reaction, and in situ

hybridization. In situ hybridization was performed in combination with the immunohistochem. detection of cell type-specific antigens.

Results: **Synovial membrane** specimens from 19 of 21 patients with RA expressing **collagenase 3 mRNA** were pos. for **MT1-MMP** and **gelatinase**

**A mRNA**. In control samples from patients without destructive inflammatory joint diseases **collagenase 3 mRNA** was not expressed and only in two of seven cases was a coexpression of **MT1-MMP** and **gelatinase**

**A mRNA** detected. Fibroblast-like cells of the **synovial membrane** were the predominant source of **collagenase 3**, **MT1-MMP**, and

**gelatinase A mRNA** expression in lining and sublining layers as well as at the **synovial membrane-cartilage** interface. Addnl., the expression of **MT1-MMP mRNA** was detected in endothelial cells.

**Collagenase 3 mRNA** expression was found in about 5% of CD68 pos. macrophages. Conclusions: **Collagenase 3 mRNA** is expressed simultaneously with **MT1-**

**MMP** and **gelatinase A mRNA** in fibroblast-like cells of the **synovial membrane** in RA.

These results suggest (a) a broad extracellular proteolytic potential of fibroblast-like cells and (b) an important role of cell surface assocd.

**procollagenase 3** activation by **MT1-MMP** and **gelatinase A** for cartilage degradn. by invading fibroblast-like cells.

ST **collagenase 3 MT1MMP gelatinase A**  
mRNA synovium rheumatoid arthritis

IT Fibroblast

Human

Macrophage

Rheumatoid arthritis

Synovial membrane

Transcription, genetic

(characterization of cell type-specificity of **collagenase**

**3 mRNA** expression in comparison with **membrane**

type 1 matrix **metalloproteinase** and **gelatinase**

**A** in **synovial membrane** in

**rheumatoid arthritis**)

IT Gene, animal

mRNA

RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)

(characterization of cell type-specificity of **collagenase**

**3 mRNA** expression in comparison with **membrane**

type 1 matrix **metalloproteinase** and **gelatinase**

**A** in **synovial membrane** in

**rheumatoid arthritis**)

IT Blood vessel

(endothelium; characterization of cell type-specificity of

**collagenase 3 mRNA** expression in comparison

with **membrane** type 1 matrix **metalloproteinase** and

**gelatinase A** in **synovial membrane**

in **rheumatoid arthritis**)

IT Post-translational processing

(proteolytic, **procollagenase 3**; characterization of cell

type-specificity of **collagenase 3 mRNA**

expression in comparison with **membrane** type 1 matrix

**metalloproteinase** and **gelatinase A** in

**synovial membrane** in **rheumatoid**

**arthritis** in relation to)

IT 176742-44-2, **Procollagenase 3**

RL: ADV (Adverse effect, including toxicity); BSU (Biological study,

unclassified); BIOL (Biological study)  
 (activation; characterization of cell type-specificity of  
 collagenase 3 mRNA expression in comparison  
 with membrane type 1 matrix metalloproteinase and  
 gelatinase A in synovial membrane  
 in rheumatoid arthritis in relation to)

IT 146480-35-5, Gelatinase A 161384-17-4  
 , Matrix metalloproteinase MT-MMP-1  
 175449-82-8, Collagenase 3

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (characterization of cell type-specificity of collagenase  
 3 mRNA expression in comparison with membrane  
 type 1 matrix metalloproteinase and gelatinase  
 A in synovial membrane in  
 rheumatoid arthritis)

RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE

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L98 ANSWER 3 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:240515 HCAPLUS

DN 136:273185

TI Use of transcription factors for treating inflammation and other diseases

IN Oettgen, Peter; Libermann, Towia; Goldring, Mary

PA Beth Israel Deaconess Medical Center, USA

SO PCT Int. Appl., 112 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM A61K  
 CC 1-7 (Pharmacology)  
 Section cross-reference(s): 9, 14

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002024144	A2	20020328	WO 2001-US29340	20010920
	WO 2002024144	A3	20020606		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	AU 2001092818	A5	20020402	AU 2001-92818	20010920
PRAI	US 2000-234379P	P	20000920		
	WO 2001-US29340	W	20010920		
AB	The present invention provides a method of treating inflammation in a mammal comprising altering the activity of a transcription factor involved in the inflammatory response. In preferred methods, the transcription factor is expressed in said mammal in response to a pro-inflammatory agent the transcription factor is not normally expressed, or is expressed at a low level, in the absence of the pro-inflammatory agent. The invention also relates to the use of transcription factors to screen compds. that are capable of reducing inflammation. The invention also relates to the use of transcription factors in methods of <b>diagnosing</b> the presence of an inflammatory disease in a tissue of a mammal and methods of monitoring the treatment of an inflammatory disease in a tissue of a mammal.				
ST	transcription factor modulation inflammation disease treatment screening				
IT	Transcription factors				
	RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (AP-1 (activator protein 1); use of methods of altering transcription factors for treating and <b>diagnosing</b> inflammation and other diseases in relation to response to pro-inflammatory agents)				
IT	Transcription factors				
	RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (C/EBP (CCAAT box/enhancer element-binding protein); use of methods of altering transcription factors for treating and <b>diagnosing</b> inflammation and other diseases in relation to response to pro-inflammatory agents)				
IT	Gene, animal				
	RL: BSU (Biological study, unclassified); BIOL (Biological study) (COL2A1, expression; use of methods of altering transcription factors for treating and <b>diagnosing</b> inflammation and other diseases in relation to response to pro-inflammatory agents)				
IT	Cytokine receptors				
	RL: BSU (Biological study, unclassified); BIOL (Biological study) (DR5 (death receptor 5), gene encoding, expression; use of methods of altering transcription factors for treating and <b>diagnosing</b> inflammation and other diseases in relation to response to pro-inflammatory agents)				
IT	Transcription factors				
	RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ELK-1; use of methods of altering transcription factors for treating and <b>diagnosing</b> inflammation and other diseases in relation to response to pro-inflammatory agents)				

- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ERG; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ESE-1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ESE-2; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (ESE-3; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (Egr-1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (Erp-1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (FLI-1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Orphan receptors  
RL: BSU (Biological study, unclassified); BIOL (Biological study) (MINOR, gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (NF-.kappa.B (nuclear factor .kappa.B), p50 and p65 subunits, ESE-1 promoter binding by; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses) (PU.1; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use,

- unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(SAP-1; use of methods of altering transcription factors for treating  
and **diagnosing** inflammation and other diseases in relation to  
response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use,  
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(STAT; use of methods of altering transcription factors for treating  
and **diagnosing** inflammation and other diseases in relation to  
response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use,  
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(TEL-1; use of methods of altering transcription factors for treating  
and **diagnosing** inflammation and other diseases in relation to  
response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use,  
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(TEL-2; use of methods of altering transcription factors for treating  
and **diagnosing** inflammation and other diseases in relation to  
response to pro-inflammatory agents)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(angiogenesis-assocd.; use of methods of altering transcription factors  
for treating and **diagnosing** inflammation and other diseases  
in relation to response to pro-inflammatory agents)
- IT Antiarteriosclerotics  
(antiatherosclerotics; use of methods of altering transcription factors  
for treating and **diagnosing** inflammation and other diseases  
in relation to response to pro-inflammatory agents)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(apoptosis-assocd.; use of methods of altering transcription factors  
for treating and **diagnosing** inflammation and other diseases  
in relation to response to pro-inflammatory agents)
- IT Sepsis  
(bacterial; use of methods of altering transcription factors for  
treating and **diagnosing** inflammation and other diseases in  
relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use,  
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(c-ets-1; use of methods of altering transcription factors for treating  
and **diagnosing** inflammation and other diseases in relation to  
response to pro-inflammatory agents)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); BUU (Biological use,  
unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(c-ets-2; use of methods of altering transcription factors for treating  
and **diagnosing** inflammation and other diseases in relation to  
response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(c-rel, ESE-1 binding to; use of methods of altering transcription  
factors for treating and **diagnosing** inflammation and other  
diseases in relation to response to pro-inflammatory agents)
- IT **Connective tissue**  
(disease; use of methods of altering transcription factors for treating  
and **diagnosing** inflammation and other diseases in relation to  
response to pro-inflammatory agents)
- IT Mutation  
(dominant neg.; use of methods of altering transcription factors for



- treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Blood vessel  
Blood vessel  
(endothelium, cell, transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Toxins  
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)  
(endotoxins, inflammatory agents; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Gene  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(expression, inflammatory; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Promoter (genetic element)  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(for ESE-1 gene, NF-.kappa.B binding by; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Promoter (genetic element)  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(for transcription factor genes; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Digestive tract  
(gastroenteritis; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(gene c-ets; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Fas **antigen**  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Angiogenesis  
Apoptosis  
(genes assocd. with; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Neuroglia  
(glioma, transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Synovial fluid  
(inflammation of and transcription factors detn. in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to

- pro-inflammatory agents)
- IT Blood  
(inflammation of; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Interleukin 1  
Interleukin 15  
Interleukin 17  
Interleukin 18  
Interleukin 1.beta.  
Leukemia inhibitory factor  
Lipopolysaccharides  
Tumor necrosis factors  
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)  
(inflammatory agent; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Animal virus  
(inflammatory agents; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Cytokines  
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study)  
(inflammatory agents; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Kidney, disease  
(nephritis; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Mutation  
(of ESE-1 promoter NF-.kappa.B binding site; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Artery, disease  
(restenosis; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT **Connective tissue**  
(scleroderma; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Muscle  
(smooth, cell, transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Brain, disease  
(stroke; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT **Synovial membrane**  
(**synoviocyte**, transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Lupus erythematosus  
(systemic; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

- IT Gene, animal  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(transcription factor-encoding; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Animal tissue  
Blood analysis  
Cerebrospinal fluid  
Urine analysis  
(transcription factors detn. in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Animal cell  
**Chondrocyte**  
Fibroblast  
Monocyte  
**Osteoblast**  
(transcription factors expression induction by pro-inflammatory agents in; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Artery, disease  
(transplantation-assocd. arteriopathy; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT Alzheimer's disease  
Anti-Alzheimer's agents  
Anti-inflammatory agents  
**Antiarthritics**  
Antidiabetic agents  
Antipyretics  
**Antirheumatic** agents  
Atherosclerosis  
Autoimmune disease  
DNA viruses  
Dermatitis  
Diabetes mellitus  
**Diagnosis**  
Drug screening  
Fever and Hyperthermia  
Human  
Inflammation  
Multiple sclerosis  
**Osteoarthritis**  
Psoriasis  
**Rheumatic** diseases  
**Rheumatoid arthritis**  
Transplant rejection  
(use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT High-mobility group proteins  
Transcription factors  
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); DGN (Diagnostic use); BIOL (Biological study); USES (Uses)  
(use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT **Antisense RNA**

Organic compounds, biological studies

Peptides, biological studies

RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)

- IT Blood vessel, disease  
(vasculitis; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT 147172-61-0, Aggrecanase  
RL: BSU (Biological study, unclassified); BIOL (Biological study) (ADAM-TS4, gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT 405150-12-1, Aggrecanase 2  
RL: BSU (Biological study, unclassified); BIOL (Biological study) (ADAM-TS5, gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT 9001-12-1, Matrix **metalloproteinase** 1 9001-84-7, Phospholipase A2 79955-99-0, Matrix **metalloproteinase** 3 141907-41-7, Matrix **metalloproteinase** 146480-36-6, Matrix **metalloproteinase** 9 161384-17-4, Matrix **metalloproteinase** 14 175449-82-8, Matrix **metalloproteinase** 13 329900-75-6, Cyclooxygenase 2  
RL: BSU (Biological study, unclassified); BIOL (Biological study) (gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT 125978-95-2, Nitric oxide synthase  
RL: BSU (Biological study, unclassified); BIOL (Biological study) (inducible, gene encoding, expression; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT 106956-32-5, Oncostatin M  
RL: ADV (Adverse effect, including toxicity); BSU (Biological study, unclassified); BIOL (Biological study) (inflammatory agent; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT 159606-08-3, I.kappa.B Kinase 165245-96-5, p38 Kinase  
RL: BSU (Biological study, unclassified); BIOL (Biological study) (transcription factor expression blockade by; use of methods of altering transcription factors for treating and **diagnosing** inflammation and other diseases in relation to response to pro-inflammatory agents)
- IT 406617-21-8 406617-22-9 406617-23-0 406617-24-1 406617-25-2  
406617-26-3 406617-27-4 406617-28-5 406617-29-6 406617-30-9  
406617-31-0 406617-32-1 406617-33-2 406617-34-3 406617-35-4  
406617-36-5 406617-37-6 406617-38-7 406617-39-8 406617-40-1  
406617-41-2 406617-42-3 406617-43-4 406617-44-5 406617-45-6  
406617-46-7 406617-47-8  
RL: PRP (Properties)  
(unclaimed sequence; use of transcription factors for treating inflammation and other diseases)

DN 137:77187  
 TI Stimulation of **collagenase 3** expression in  
**synovial** fibroblasts of patients with **rheumatoid**  
**arthritis** by contact with a three-dimensional collagen matrix or  
 with normal **cartilage** when coimplanted in NOD/SCID mice  
 AU **Wernicke, Dirk; Schulze-Westhoff, Claudia; Petrow,**  
**Peter; Brauer, Rolf; Zacher, Josef; Gay, Steffen; Gromnica-Ihle,**  
**Erika**  
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 Berlin, Germany  
 SO Arthritis & Rheumatism (2002), 46(1), 64-74  
 CODEN: ARHEAW; ISSN: 0004-3591  
 PB Wiley-Liss, Inc.  
 DT Journal  
 LA English  
 CC 14-11 (Mammalian Pathological Biochemistry)  
 AB Objective. To study the expression of **collagenase 3** (  
**matrix metalloproteinase 13 [MMP-**  
**13])** and **collagenase 1 (MMP-1)** in  
**synovial** fibroblasts from patients with **rheumatoid**  
**arthritis** (RA) when cultured within 3-dimensional collagen gels or  
 coimplanted with normal **cartilage** in immunodeficient NOD/SCID  
 mice. Methods. **MRNA (mRNA)** and protein expression of  
**collagenase 3** and **collagenase 1** were  
 characterized in **synovial** and skin fibroblasts by Northern blot  
 and Western blot anal. The **mRNA** expression of both  
**collagenases** in cell-**cartilage** implants in NOD/SCID mice  
 was investigated by in situ hybridization in combination with  
 immunohistochem. of human fibroblasts. Results. **Synovial**  
 fibroblasts coimplanted with normal **cartilage** in NOD/SCID mice  
 deeply invaded adjacent **cartilage** tissue. In this in vivo  
 system of **cartilage** destruction, **collagenase 3**  
**mRNA** was induced in **synovial** fibroblasts at sites of  
**cartilage** erosion, while the expression of **collagenase 1**  
**mRNA** could not be detected. Culture of **synovial**  
 fibroblasts within 3-dimensional collagen gels was assocd. with a marked  
 increase in **collagenase 3 mRNA** expression  
 and proenzyme prodn. This stimulatory effect was 1 order of magnitude  
 higher in comparison with a 2-4-fold increase upon treatment with  
 interleukin-1.beta. or tumor necrosis factor .alpha.. In contrast,  
**mRNA** expression and proenzyme prodn. of **collagenase 1**  
 were increased strongly, and to a similar extent, either by contact with  
 3-dimensional collagen or by proinflammatory cytokines. Conclusion. The  
 expression of **collagenase 3**, in contrast to that of  
**collagenase 1**, is preferentially stimulated in **synovial**  
 fibroblasts by 3-dimensional collagen rather than by proinflammatory  
 cytokines. The induction of **collagenase 3** by  
 cell-matrix interactions represents a potential mechanism contributing to  
 the invasive phenotype of **synovial** fibroblasts at sites of  
**synovial** invasion into **cartilage** in RA.  
 ST **rheumatoid arthritis collagenase 3**  
**synovia fibroblast collagen cartilage**  
 IT **mRNA**  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (MMP-13; **collagenase 3**  
 expression stimulated in **synovial** fibroblasts of patients  
 with **rheumatoid arthritis** by contact with a  
 3-dimensional collagen matrix or normal **cartilage**)  
 IT Fibroblast  
**Rheumatoid arthritis**  
**Synovial membrane**  
 (**collagenase 3** expression stimulated in  
**synovial** fibroblasts of patients with **rheumatoid**

- arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage**)
- IT Collagens, biological studies  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (**collagenase 3** expression stimulated in **synovial** fibroblasts of patients with **rheumatoid arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage**)
- IT Human  
 (**collagenase 3** expression stimulated in **synovial** fibroblasts of patients with **rheumatoid arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage** when coimplanted in NOD/SCID mice)
- IT Tumor necrosis factors  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (cytokine effect on **collagenase 3** expression in **synovial** fibroblasts of patients with **rheumatoid arthritis**)
- IT Interleukin 1.beta.  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (cytokine effect on **collagenase 3** expression in **synovial** fibroblasts of patients with **rheumatoid arthritis** in contact with collagen or normal **cartilage**)
- IT **Cartilage**  
 (**degeneration**; **collagenase 3** expression stimulated in **synovial** fibroblasts of patients with **rheumatoid arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage**)
- IT Cytokines  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (inflammatory; cytokine effect on **collagenase 3** expression in **synovial** fibroblasts of patients with **rheumatoid arthritis** in contact with collagen or normal **cartilage**)
- IT **175449-82-8, Collagenase 3**  
 RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (**collagenase 3** expression stimulated in **synovial** fibroblasts of patients with **rheumatoid arthritis** by contact with a 3-dimensional collagen matrix or normal **cartilage**)

RE.CNT 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD  
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AN 2002:27460 HCAPLUS

DN 137:104615

TI Anabolic and catabolic gene expression pattern analysis in normal versus **osteoarthritic cartilage** using complementary DNA-array technology

AU Aigner, Thomas; Zien, Alexander; Gehrsitz, Angelika; Gebhard, Pia  
Margarethe; McKenna, Louise

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SO Arthritis & Rheumatism (2001), 44(12), 2777-2789

CODEN: ARHEAW; ISSN: 0004-3591

PB Wiley-Liss, Inc.

DT Journal

LA English

CC 3-4 (Biochemical Genetics)

Section cross-reference(s): 14

AB To understand changes in gene expression levels that occur during **osteoarthritic (OA) cartilage** degeneration, using complementary DNA (cDNA)-array technol. Nine normal, 6 early degenerated, and 6 late-stage OA **cartilage** samples of human knee **joints** were analyzed using the Human Cancer 1.2 cDNA array and TaqMan anal. In addn. to a large variability of expression levels between different patients, significant expression patterns were **detectable** for many genes. **Cartilage** types II and VI collagen were strongly expressed in late-stage specimens, reflecting the high matrix-remodeling activity of advanced OA **cartilage**. The increase in fibronectin expression in early degeneration suggests that fibronectin is a crucial regulator of matrix turnover activity of chondrocytes during early disease development. Of the matrix **metalloproteinases (MMPs)**, **MMP-3** appeared to

be strongly expressed in normal and early degenerative **cartilage** and down-regulated in the late stages of disease. This indicates that other degradn. pathways might be more important in late stages of **cartilage** degeneration, involving other enzymes, such as **MMP-2** and **MMP-11**, both of which were up-regulated in late-stage disease. **MMP-11** was up-regulated in OA chondrocytes and, interestingly, also in the early-stage samples. Neither **MMP-1** nor **MMP-8** was **detectable**, and **MMP-13** and **MMP-2** were significantly **detectable** only in late-stage specimens, suggesting that early stages are characterized more by degradn. of other matrix components, such as aggrecan and other noncollagenous mols., than by degradn. of type II collagen fibers. This investigation allowed us to identify gene expression profiles of the disease process and to get new insights into disease mechanisms, for example, to develop a picture of matrix proteinases that are differentially involved in different phases of the disease process.

- ST human **osteoarthritis cartilage** degeneration gene expression; cDNA microarray **detection osteoarthritic cartilage** gene expression
- IT **Chondrocyte**  
DNA microarray technology  
Human  
    **Osteoarthritis**  
    (anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT **Cartilage**  
    (**degeneration**; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT Aggrecans  
Collagens, biological studies  
Fibronectins  
    **Osteonectin**  
Proteoglycans, biological studies  
Tenascins  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
    (expression of; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT **Joint, anatomical**  
    (knee; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
    (type II, Col2A1, expression of; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
    (type III, Col2A1, expression of; anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)
- IT 79955-99-0, Matrix **metalloproteinase-3** 145267-01-2, Matrix **metalloproteinase-11** 146480-35-5, Matrix **metalloproteinase-2** 175449-82-8, Matrix **metalloproteinase-13**  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
    (anabolic and catabolic gene expression pattern anal. in normal vs. **osteoarthritic cartilage** using complementary DNA-array technol.)



IT 9001-06-3, Chitinase

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(expression of; anabolic and catabolic gene expression pattern anal. in  
normal vs. **osteoarthritic cartilage** using  
complementary DNA-array technol.)

RE.CNT 57 THERE ARE 57 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L98 ANSWER 6 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2002:989 HCAPLUS

DN 136:384261

TI Production of cytokines, vascular endothelial growth factor, matrix **metalloproteinases**, and tissue inhibitor of **metalloproteinases** 1 by tenosynovium demonstrates its potential for tendon destruction in **rheumatoid arthritis**  
 AU Jain, Abhilash; Nanchahal, Jagdeep; Troeberg, Linda; Green, Patricia; Brennan, Fionula

CS Imperial College School of Medicine, London, W6 8H, UK

SO Arthritis & Rheumatism (2001), 44(8), 1754-1760

CODEN: ARHEAW; ISSN: 0004-3591

PB Wiley-Liss, Inc.

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 15

AB To investigate the role of proinflammatory cytokines, vascular endothelial growth factor (VEGF), matrix **metalloproteinases** (**MMPs**), and tissue inhibitor of **metalloproteinases** 1 (TIMP-1) in the destruction of tendons by tenosynovium in **rheumatoid arthritis** (RA). **Synovial** specimens were obtained from encapsulating tenosynovium (n = 17), invasive tenosynovium (n = 13), and wrist **joints** (n = 17) in 18 RA patients undergoing wrist extensor tenosynovectomy. **Synovial membrane** cells were dissocd. from **connective tissue** by enzyme digestion and cultured in vitro for 48 h, and harvested supernatants were assayed for the cytokines tumor necrosis factor .alpha. (TNF.alpha.) and interleukin-6 (IL-6), VEGF, **MMPs** 1, 2, 3, and 13, and TIMP-1 by ELISA. Gelatin zymog. was performed to demonstrate enzyme activity. Statistical anal. was performed using Student's paired 2-tailed t-tests for parametric data and the Wilcoxon signed rank test for nonparametric data. **MMP-1** and **MMP-13** levels were .apprx.2.5-fold higher in invasive tenosynovium compared with encapsulating tenosynovium. Levels of **MMP-2** were .apprx.1.5-fold higher in invasive tenosynovium compared with both encapsulating tenosynovium and wrist **joint synovium**. **MMP-13** (P = 0.009) and IL-6 (P = 0.03) levels were significantly lower in encapsulating tenosynovium compared with wrist **joint synovium**. Levels of VEGF, TIMP-1, TNF.alpha., and **MMP-3** were similar in all **synovial** sample groups. Zymog. demonstrated enzyme activity in all **synovium** samples from all 9 patients assessed. Tenosynovium produces proinflammatory cytokines and proteolytic enzymes that are important in the tissue degrdn. seen in RA. Increased prodn. of the enzymes **MMP-1**, **MMP-2**, and **MMP-13** by invasive tenosynovium suggests a possible explanation for the worse **prognosis** and increased rupture rate assocd. with invasive tenosynovitis in RA. Prodn. of VEGF by tenosynovium suggests that angiogenesis may have a role in tenosynovial proliferation and invasion of tendons.

ST human tenosynovitis **rheumatoid arthritis** cytokine  
 matrix **metalloproteinase** TIMP1 VEGF

IT Human  
 Rheumatoid arthritis  
 Synovial membrane  
 Tendon  
 (cytokines, VEGF, **MMPs**, and TIMP-1 prodn. by tenosynovium demonstrated its potential for tendon destruction in **rheumatoid arthritis**)

IT Interleukin 6

Tumor necrosis factors

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(cytokines, VEGF, **MMPs**, and TIMP-1 prodn. by tenosynovium  
demonstrated its potential for tendon destruction in **rheumatoid  
arthritis**)

IT Cytokines

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(inflammatory; cytokines, VEGF, **MMPs**, and TIMP-1 prodn. by  
tenosynovium demonstrated its potential for tendon destruction in  
**rheumatoid arthritis**)

IT Rheumatic diseases

Synovial membrane

(**rheumatoid synovitis**, tenosynovitis; cytokines,  
VEGF, **MMPs**, and TIMP-1 prodn. by tenosynovium demonstrated  
its potential for tendon destruction in **rheumatoid  
arthritis**)

IT 9001-12-1, Matrix **metalloproteinase 1** 79955-99-0, Matrix  
**metalloproteinase 3** 127464-60-2, Vascular endothelial growth  
factor 140208-24-8, TIMP-1 **146480-35-5**, Matrix  
**metalloproteinase 2** 175449-82-8,  
**Matrix metalloproteinase 13**

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(cytokines, VEGF, **MMPs**, and TIMP-1 prodn. by tenosynovium  
demonstrated its potential for tendon destruction in **rheumatoid  
arthritis**)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD  
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L98 ANSWER 7 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:828415 HCAPLUS

DN 137:89412

TI Detection of variations in the DNA methylation profile of genes in the  
determining the risk of disease

IN Berlin, Kurt; Piepenbrock, Christian; Olek, Alexander

PA Epigenomics A.-G., Germany

SO PCT Int. Appl., 636 pp.

CODEN: PIXXD2

DT Patent

LA German

IC C12Q001-68

CC 3-1 (Biochemical Genetics)

Section cross-reference(s): 1, 9, 14

FAN.CNT 68

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI WO 2001077373 A2 20011018 WO 2001-XA1486 20010406  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, CF, CG, CI, CM, GA, GW, ML, MR, NE, SN, TD, TG  
 DE 10019058 A1 20011220 DE 2000-10019058 20000406  
 WO 2001077373 A2 20011018 WO 2001-DE1486 20010406  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM  
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG  
 PRAI DE 2000-10019058 A 20000406  
 WO 2001-DE1486 W 20010406  
 AB The invention relates to an oligonucleotide kit as probe for the detection of relevant variations in the DNA methylation of a target group of genes. The invention further relates to the use of the same for detg. the gene variant with regard to DNA methylation, a medical device, using an oligonucleotide kit, a method for detg. the methylation state of an individual and a method for the establishment of a model for establishing the probability of onset of a disease state in an individual. Such diseases may be: undesired pharmaceutical side-effects; cancerous diseases; CNS dysfunctions, injuries or diseases; aggressive symptoms or relational disturbances; clin., psychol. and social consequences of brain injury; psychotic disorders and personality disorders; dementia and/or assocd. syndromes; cardiovascular disease, dysfunction and damage; dysfunction, damage or disease of the gastrointestinal tract; dysfunction, damage or disease of the respiratory system; injury, inflammation, infection, immunity and/or anastasis; dysfunction, damage or disease of the body as an abnormal development process; dysfunction, damage or disease of the skin, muscle, connective tissue or bones; endocrine and metabolic dysfunction, damage or disease; headaches or sexual dysfunction. This abstr. record is one of several records for this document necessitated by the large no. of index entries required to fully index the document and publication system constraints.  
 ST DNA methylation assay disease susceptibility detn  
 IT Bone morphogenetic proteins  
 Synaptobrevins  
 Syntaxins  
 Uncoupling protein  
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)  
 IT Gene, animal  
 RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (1PC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)  
 IT Bone morphogenetic proteins  
 Presenilins  
 Synaptobrevins

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins  
Cyclin dependent kinase inhibitors  
P-glycoproteins  
Tropomyosins  
Uncoupling protein  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins  
Laminins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(6, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(95,000-mol.-wt., postsynaptic d., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chromogranins  
Cyclins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(A-I, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(A-II, DNA methylation profiles in gene for and disease susceptibility;

detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(A2M, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(AAEMX1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(ABC (ATP-binding cassette) transporters, ABCC7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ABC7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ABCR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ABO, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACAA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACACA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACADL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACADM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACADS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACAT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACTN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACTN3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACVR2B, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ACVRL1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(ADCX, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ADD1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ADD2 DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ADH3, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(ADHR, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ADTB3A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AGA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AGL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AGT, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AIF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AIM1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AIRE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ALAD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ALDH1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ALDH10, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)



- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ALDH2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ALDOA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ALDOB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ALDOC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ANGPT1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ANGPT2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ANX1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ANX4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(AP-2 (activator protein 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APBB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (APC, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APLP, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOAI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOC1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOC3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APOH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APP, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(APT1LG1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AR, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AREG, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ARG1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ARNT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ARSA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ARSB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ARSD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (ARSE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ARSF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ASH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ASL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ASPA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ASS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ASTN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AT3, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ATDC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ATM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ATOH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ATP2A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ATP7B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ATRX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AVP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(AZF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(Ace, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Apaf-1 (apoptotic protease activating factor-1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins  
Cyclins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(B, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(B-lym, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(B-raf, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(B23, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(B2M, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(B3GALT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BAPX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BARD1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BAX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCAT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCAT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCL-10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCL-4, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCL-5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCL-6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCL-7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCL-8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCL-9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCL2A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chimeric gene  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BCR-ABL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BDNF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BDNFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BLM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BMP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BMP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BMP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BMP4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BMP5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BMP6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BMP7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BMP8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone morphogenetic proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(BMP8, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BPGM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic



- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BRCA1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BRCA2, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BRCD1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BRCD2, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BTK, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BWR1A, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(Bax, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Bradykinin receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(B1, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Bradykinin receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(B2, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Cyclins  
High-mobility group proteins  
Troponins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(C, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Apolipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)

- (C-I, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(C-II, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(C-III, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C1R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C1S, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C4A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C4B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C8B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(C9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CACT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CALB2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CALB3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CALBI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CALCR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CALM1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CAMK2A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(CANX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CAPN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CASP9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CAV3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CBF (core-binding factor), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CBFA1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CBFA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CBFB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CBP (CREB-binding protein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CBS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CCNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (CCNB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CCNC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CCND1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CCNE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CCR2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CCR3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CCR5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CD1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CD10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CD4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT CD antigens  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CD42a, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDH3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDK10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDK3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDK4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDK5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDK6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CDK7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (CDK8, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDK9, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDKN1A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDKN1B, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDKN1C, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDKN23, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CDKN2A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CHAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CHGA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CHH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CHM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)



- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CHRH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CHRNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CHYI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CIQA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CLCN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CLN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CLN3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CLN4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CLN5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CLN6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (CLQB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CLQG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CLU, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CNGA3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CNGAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CNR1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CNTF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CNTFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CNTN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COCH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL10A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL11A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL11A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL14A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL17A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL1A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL1A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL2A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL3A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL4A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL4A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (COL4A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL4A4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL4A5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL4A6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL5A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL5A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL6A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL6A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL6A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL7A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL9A2, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COL9A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COLQ, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(COLR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CRAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CRH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CRX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CRY1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CRY2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CSBP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CSBP1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CSBP2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CSE, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CSH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CST3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CSTB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CSX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CTH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CTNNB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CTNS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CTSG, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CTSK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CUBN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CXCR1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CXCR1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CXCR2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CXCR2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CXCR4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(CXCR4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP11A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP11B1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP11B2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP17, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP19, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP1A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP1A2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP1B1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP21, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP24, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP27, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2A13, DNA methylation profiles and disease susceptibility;



detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2A6V2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2A7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2B6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2C18, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2C19, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2C8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2C9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2D6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2E1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2F1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP2J2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP3A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP3A4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP3A5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP3A7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP4A11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP4B1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP4F2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP4F3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP51, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP5A1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP7A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(CYP8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins  
Cyclins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(D, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DAD1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Steroid receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DAX-1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DAX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DBH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DBH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DBT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DCC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DDHI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DECR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DES, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DHAPAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DHCR7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DIAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DIAPH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DIAPH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DKC1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DLD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DM, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DM2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DMBT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DMD, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DMPK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Enzymes, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DNA helicases, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Myelin basic protein  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT ACTH receptors  
Activin receptors  
Amyloid precursor proteins  
Androgen receptors  
CD1 (antigen)  
CD4 (antigen)  
Calcitonin gene-related peptide receptors  
Calcitonin receptors  
Calmodulins  
Calnexin  
Calretinin  
Cannabinoid receptors  
Carcinoembryonic antigen  
Chloride channel  
Ciliary neurotrophic factor  
Clathrin  
Clusterin

Corticotropin releasing factor receptors  
Desmins  
Dynamin  
Dystrophin  
Elastins  
Endoglycins  
Epidermal growth factor receptors  
Fas antigen  
Fas ligand  
Fibrillins  
Fibrinogens  
Fibronectins  
Galanin receptors  
Glycine receptors  
Gonadotropin-releasing hormone receptor  
Haptoglobin  
Hemoglobins  
Heregulin  
Inositol 1,4,5-trisphosphate receptors  
Iron-sulfur proteins  
Laminin receptors  
Leptin receptors  
Leukemia inhibitory factor  
Leukemia inhibitory factor receptors  
Lymphotoxin  
Macrophage inflammatory protein 2  
Melatonin receptors  
Mineralocorticoid receptors  
Monocyte chemoattractant protein-1  
Myelin P0 protein  
Myoglobins  
Myosins  
Nebulin (protein)  
Nerve growth factor receptors  
Neurofibromin  
Neurokinins  
Neurotensin receptors  
Nicotinic receptors  
Osteonectin  
Osteopontin  
Parathyroid hormone receptors  
Parvalbumins  
Platelet-activating factor receptors  
Platelet-derived growth factor receptors  
Platelet-derived growth factors  
Potassium channel  
Presenilins  
Prion proteins  
Proliferating cell nuclear antigen  
Radixin  
Ras proteins  
Ryanodine receptors  
Selectins  
Stem cell factor  
Synaptophysin  
TCR .alpha..beta. (receptor)  
Talin  
Tau factor  
Tenascins  
Thrombin receptors  
Thrombomodulin  
Thrombospondins  
Thyrotropin-releasing hormone receptors

Tumor necrosis factor receptors  
Tumor necrosis factors  
Urokinase-type plasminogen activator receptors  
VIP receptors  
Vasopressin receptors  
Vimentins  
Vinculin

Vitamin D receptors

c-Kit (protein)

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(DNA-binding, zinc finger-contg., 3, DNA methylation profiles in gene  
for and disease susceptibility; detection of variations in DNA  
methylation profile of genes in detg. risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(DNA-binding, zinc finger-contg., HRX, DNA methylation profiles in gene  
for and disease susceptibility; detection of variations in DNA  
methylation profile of genes in detg. risk of disease)

IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(DNA-binding, zinc finger-contg., ZIC2, DNA methylation profiles in  
gene for and disease susceptibility; detection of variations in DNA  
methylation profile of genes in detg. risk of disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DNM1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

IT Gene, animal

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(DNM1, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Cytokine receptors

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(DR4 (death receptor 4), DNA methylation profiles in gene for and  
disease susceptibility; detection of variations in DNA methylation  
profile of genes in detg. risk of disease)

IT Cytokine receptors

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(DR5 (death receptor 5), DNA methylation profiles in gene for and  
disease susceptibility; detection of variations in DNA methylation  
profile of genes in detg. risk of disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DRPLA, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(DYSF, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DYT1, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DYT3, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DYT6, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(DYT7, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(Ddc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Blood-group substances  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Duffy, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

IT Calbindins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(D28k, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Calbindins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(D9k, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Apolipoproteins  
Cyclins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(E, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

IT Cadherins  
Selectins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL



- (Biological study); USES (Uses)  
(E-, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(EB1 (Epstein-Barr virus 1), DNA methylation profiles in gene for and  
disease susceptibility; detection of variations in DNA methylation  
profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EBAF, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ECE, DNA methylation profiles in and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(ED1, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EDN1, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EDN2, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EDN3, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EDNRA, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EDNRB, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EFMR, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EGF, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EIF4E, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(EKLF (erythroid Kruppel-like factor), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EKLF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ELK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ELK2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ELN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(EMD, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(EMX2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ENG, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EPB41, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EPB42, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EPB72, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EPHA, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EPHB, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(EPM2A, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ERB, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ERBAL2, methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ERCC5, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ERG, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(ETFA, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.

- risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(ETFB, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(ETFDH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ETM1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ETM2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EWSR1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EXT1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(EXT2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(En-1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(Evi-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(F1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(F11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(F12, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(F13, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(F2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(F2R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(F3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(F5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(FABP (fatty acid-binding protein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FABP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FANCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FANCC, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg.

- risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FANCD, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FBN1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FBN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FCGR2A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FCGR3A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FCGRLA, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FCMD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FECH, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGD1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGF1, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGF3, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGFR1, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGFR2, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGFR3, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FGG, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FKHR, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FLII, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FN1, DNA methylation profiles in and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FRAXA, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FRAXE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FRAXF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FUCAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FUT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FUT22, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FVT1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(FY, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(G/T mismatch binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Immunoglobulins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(G2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GAA, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL



- (Biological study); USES (Uses)  
(GAD1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GAL, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GALC, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GALE, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GALNRL, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GALNS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GAS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GAX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GBEI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GBX2, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GCDH, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- disease)  
IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GDCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GDF5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GDI (GDP dissocn. inhibitor), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GDNF, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurotrophic factor receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GDNF, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GFBI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GGTAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GIF, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GJB2, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GJB3, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GK, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GLA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GLCLC, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GLDC, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GLI1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GLI2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GLI3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GLRA2, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GLS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GLUD1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GLYS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GLYS2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GLYT, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GM2 ganglioside activator protein GM2A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GM2A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GNPTA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GNRHR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GNS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GP IX, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GP1BB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GP1BG, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GP5, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GP9, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GPC3, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GPI, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GPIBA, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GPIBB, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Glycoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(GPIb, platelet, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GPLBG, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GRB2, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GRP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GSC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GSH, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(GSM1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(GUCA1A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT G proteins (guanine nucleotide-binding proteins)  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Gq, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Apolipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(H, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HADHA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HADHB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HAGH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)
- IT Gene, animal  
Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HBA1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HBB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HBD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HBG1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HBG2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HBGG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HCF2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HCNP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HDLDT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HEXA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HEXB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HFE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HFI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HGD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HGL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HIF-1 (hypoxia-inducible factor 1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HIF-2 (hypoxia-inducible factor 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HLADPBL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HLCS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HLXB9, DNA methylation profiles and disease susceptibility; detection



- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT High-mobility group proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HMG-I(Y), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HMGIC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HMGIIY, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HOX11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HOXA13, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPAI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPE1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPE2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPE3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPE4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HPS, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-coagulation factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HRG (histidine-rich glycoprotein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HRG, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HSD11B2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HSD17B1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HSD17B3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HSD17B4, DNA methylation profiles and disease susceptibility;

- detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HSD3B2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Heat-shock proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HSPA2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Heat-shock proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(HSPAL, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HSTF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HTN3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HTS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HVBS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(HVBS6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
Receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Hel-N1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Annexins  
Synaptotagmin  
Troponins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (I, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IC7A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IC7B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cell adhesion molecules  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(ICAM1, intercellular adhesion mol.), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ICAM1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ICCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IDS, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IDUA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IFNA1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IFNB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IFNG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IFNGR1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IFNGR2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IGER, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IGES, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IGF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IGF2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IGHG2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IGHM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IGJ, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (IGKC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IGKV, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IHH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Synaptotagmin  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(II, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IKBL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ILP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(INHA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(INHBA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(INHBB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(INHBC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IRF-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IRF4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(IRS-1 (insulin receptor substrate 1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IRS1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(ISGF-2 (interferon-stimulated gene factor 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGA1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGA5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGA6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGAm, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use)

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGB2, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGB3, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGB4, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGB5, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGB6, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITGB7, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITPR1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ITPR3, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(IVD, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Immunoglobulin receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(IgG type I, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Immunoglobulin receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(IgG type II, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of



- genes in detg. risk of disease)
- IT Immunoglobulin receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(IgG type III, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(JAK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(JAK2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(JAK3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Jagged 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-group substances  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(K (Kell), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(KAI 1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(KAL1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(KEL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(KHK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Selectins

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(L-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(L-myc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cell adhesion molecules  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(L1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Ribosomal proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(L17, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(L1CAM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LAMA3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LAMB3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LAMC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LAMM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LAMP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LAMR1, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LCAM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LCAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LCO, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LECAM1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LEF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LEP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LEPR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LHX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LHX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LHX3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LHX4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LIF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LIFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LMANI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LMNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LMO1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LMO2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LMO3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LMO4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(LPL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (LPP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LQT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LRP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LST-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LTA4S, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LTB4S, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LTBP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LTC4S, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(LYL1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Laminins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(M, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MADH3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MADH4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MADS box enhancer factor 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MADS box, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MAF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MANA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MANB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MAPK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MAPT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MAX protein interacting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MBL2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (MC2R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MC4R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MCC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MC1R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MDK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MDS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MEF2A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MEF2A, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MEF2B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MEF2B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MEF2C, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MEF2D, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MEFV, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MEN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MGP (matrix .gamma.-carboxyglutamic acid-contg. protein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MGP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Histocompatibility antigens  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MHC (major histocompatibility complex), class I, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Histocompatibility antigens  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MHC (major histocompatibility complex), class II, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MHC2TA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MIDI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MIP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)



- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MLF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MLH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MLL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MLN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP10, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP12, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP13, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP14, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP15, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (MMP16, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP17, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP18, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP19, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMP9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MMPI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MPE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MPZ, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Calcium-binding proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MRP-8 (migration inhibitory factor-related protein 8), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MSH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MSH3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MSH6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MSX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MSX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MTHFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MTMI, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MTNRLA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MTNRLB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MTP (microsomal triglyceride-exchanging protein), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MTP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MTR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MUC18, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Antigens  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(MUC18, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MUL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MUM1, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MUT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MXI1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MYO6, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MYO7A, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MYCN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MYF3, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(MYF4, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Myf-5 (myogenic factor 5), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(Myf-5, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(N, snRNP, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cadherins

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(N-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cell adhesion molecules  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(N-CAM-120, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(N-ras, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NAGLU, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NAIP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(NAIP, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NAT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NAT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NB6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NCAM1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NCAM120, DNA methylation profiles and disease susceptibility;

detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NCAM2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cell adhesion molecules  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(NCAM2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NDN, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NDP, ethylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NDPKA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NDUFS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NDUFS4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NDUFV1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NEB, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NEC1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(NF-E1 (nuclear factor erythroid 1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurofilament proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(NF-H, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurofilament proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(NF-L, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NF2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NF68, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NFH, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NGF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NGFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NKNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NKNB, DNA methylation profiles and disease susceptibility; detection



- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NODAL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NOS1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NOS2, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NOS3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NOTCH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NOTCH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NPHP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NPHP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NRL, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NSK2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NTRK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NTS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(NTSR1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Notch 3DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OAl, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OCRL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ON, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OPG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OPN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OTX1, DNA methylation profiles and disease susceptibility; detection

- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OTX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OX1R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OX2R, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(OXCT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Oligophrenin 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cadherins  
Selectins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(P-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAFAH1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAFAH2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PAFR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAI1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAI2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PARS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAX3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAX6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PAX7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PCI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PCK1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PDDR, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PDGF, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PDGFR, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PDHA, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Cell adhesion molecules  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(PECAM-1, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PECAM1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(PENK, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PEPD, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PFKFB1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PFKL, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PFKM, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PGDS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PGKI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PGKL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PGY3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PHB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PHEX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PHKA2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PHYH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PIGA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PITPN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PITX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PITX3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PKA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PKD2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PKDL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PKHDL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PKP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PLF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PLG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PLRP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (PMCH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PML, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PMM2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PMP-22 (peripheral myelin protein, 22,000-mol.-wt.), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PMS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PMS2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(POMC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PPGB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PPOX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PPP1R3, DNA methylation profiles and disease susceptibility; detection



- of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PPP2R1B, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PPT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRKB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRKCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRKCG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PROC, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (PRODH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PROP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses) (PRPH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PRPS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PRSS7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PSAP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PSD95, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PSEN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PSEN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTCH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTEN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(PTEN, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTGS2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTH, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTHLH, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTHR1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTHRP, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTPN12, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PTS, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PVALB, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PXMP3, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PXR1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(PYCS, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(PYGL, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(Prn-p gene, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(R-ras, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RAB3a, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RAG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoic acid receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RAR-.alpha., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoic acid receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RAR-.beta., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoic acid receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RAR-.gamma., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RARA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RARB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RB1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RDX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT DNA formation factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RF-C (replication factor C), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RFC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RFX5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RFXAP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RHAG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RHCE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RHD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RHOK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RIGUI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RLBP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RLN1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RLN2, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RPL17, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RPP65, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RPP65, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RPS19, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RPX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RS, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RXRA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RXRB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RXRB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RXRB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RXRG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoid X receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RXR.alpha., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoid X receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RXR.beta., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Retinoid X receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(RXR.gamma., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(RYR1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-group substances  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Rh(D), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-group substances  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Rh, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Rhesus blood group-assocd., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Rim, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Calcium-binding proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(S-100, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(S100A3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of

- disease)  
IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(S100A4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Calcium-binding proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(S100A4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(S100A5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(S100A7, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(S100A8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(S100A9, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(S100P, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Ribosomal proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(S19, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(SAA (serum amyloid A), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(SAA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL



- (Biological study); USES (Uses)  
(SAP (serum amyloid P component), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SAP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SCA8, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SCF, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SCP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(SCP2 (sterol carrier protein 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SDHL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SELE, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SELL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SELP, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SEMA3, DNA methylation profiles disease susceptibility; detection of

- variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SEMA5, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SEMAE, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SEMAW, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Sialoglycoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(SGP-2 (sulfoglycoprotein 2), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SGSH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SH2D1A, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SHH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SIX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SIX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SIX5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SLAM, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lymphokines  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(SLAM, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(SLAM-assocd., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SMARCSI, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SMNI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SMOH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SMPD1, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(SNAP-25 (synaptosome-assocd. protein, 25,000-mol.-wt.), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SNAP25, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SNCA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (SNCA, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SNCB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SNRPN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SOD-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SOD3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SOX 11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SOX11, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SPG7, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SPTAI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SPTB, DNA methylation profiles disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SSAI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SSX1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SSX2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ST3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ST8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STAR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STAT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(STAT1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STAT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(STAT2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STAT3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (STAT3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STAT4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(STAT4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STAT5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(STAT5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STK11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STK2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(STS, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SUOX, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SV2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SVAT, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYB2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYND1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYND2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYND3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYND4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(SYT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (SyB1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Troponins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(T, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TAL2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TAP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TAP2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TAT, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TBG, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(TCF-1 (T-cell factor 1), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TCN1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TCN2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TCRA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)



- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TCRD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TECTA, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TEK, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TEL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TFAP2B, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TFAP2C, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TGFA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TGFB2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TGFB2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (THBD, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(THBSI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(THPO, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(THRB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(THRTA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TIMP-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TIMP-3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TIMP-4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TKCR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TKTL1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TLN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TNA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TNFA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TNFAR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TNFB, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TNFBR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TNN13, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TNNT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TNXA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TP73, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TPA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (TPH, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TPI1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TPM3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TPT1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRAF1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRAF2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRAF3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRAF4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRAF5, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRAF6, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cytokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(TRAIL, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Cytokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(TRAIL-R3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRC8, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRH, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TRHR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TSC1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TSC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TSG101, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TSPY, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TTPA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(TULP1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(Thy-1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

## IT Antigens

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(Thy-1, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)

## IT Proteins

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(Tip-assocd., DNA methylation profiles of gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)

## IT Neurotrophic factor receptors

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(TrkA, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

## IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(UCP3, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

## IT Gene, animal

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(UCP3, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

## IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(UFD1L, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

## IT Gene, animal

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(UGT2, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

## IT Gene, animal

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(UGTL, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

## IT Gene, animal

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(UMPK, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

## IT Gene, animal

RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(UMPS, DNA methylation profiles in and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.)

- risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(UOX, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(UPA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(UPAR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(UROS, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(USH2A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(V, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(VAMP8, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VDR, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VHL, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VIM, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VIP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VIPR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VLDLR, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VMAT1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VMAT2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VPP1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VPP3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(VVTI, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(Vitamin B12-binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(WASP, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(WFS1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)



- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(WHN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(WHSC1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(WRN, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(WT2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(WT4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(XPA, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(XPC, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(XPF, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(XRCC9, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(Xdh, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

(Biological study); USES (Uses)  
(Y, DNA methylation profiles in gene for and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(YY1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); DGN (Diagnostic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(YY1, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ZIC2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ZIC3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ab11, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(abl2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(acidic amino acid-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(acylcarnitine-carnitine-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(adducins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Behavior  
(aggressive, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(akt1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(akt2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(amyloid precursor binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(amyloid precursor-like, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(apoptosis-regulating, Apoptosis inducing factor, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(aspartate, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(astrotactins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Nervous system  
(ataxia telangiectasia, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(atrophin 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(axl, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(band 4.1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of

- genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(band 4.2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(band 7.2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(bcl-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(bcl-2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(bcl-3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurotrophic factor receptors  
Neurotrophic factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(brain-derived, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Genetic element  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(breakpoint cluster region, detection of methylation in; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-Ha-ras, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-erbA, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-erbB, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-erbB2, DNA methylation profiles and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-erbB3, DNA methylation profiles and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-erbB4, DNA methylation profiles and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-ets-1, DNA methylation profiles and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-ets-2, DNA methylation profiles and disease susceptibility;  
detection of variations in DNA methylation profile of genes in detg.  
risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-fes, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-fgr, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-jun, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-kit, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-mos, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-mpl, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)

- disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-myb, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-myc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-ros, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-sis, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-ski, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-src, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(c-yes, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(calcium-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(carnitine-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(caveolins, 3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic

- use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(cdk2, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Nervous system  
(central, disease, detn. of genetic susceptibility to; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Neurotrophic factor receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(ciliary, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(clk1, DNA methylation profiles and disease susceptibility; detection  
of variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(cochlin, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(cofilin, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(collagen, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(contactin, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(copper-transporting, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(cot, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(crk, DNA methylation profiles and disease susceptibility; detection of  
variations in DNA methylation profile of genes in detg. risk of  
disease)
- IT Gene, animal

- RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(crkl, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Ion channel  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(cyclic nucleotide-gated, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(cystinosin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Mental disorder  
(dementia, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Human  
Test kits  
(detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Bone, disease  
Headache  
Infection  
Inflammation  
Muscle, disease  
Neoplasm  
Skin, disease  
(detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Drugs  
(detn. of risk of side effects; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Susceptibility (genetic)  
(detn. of; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(dhh, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(diaphanous 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(diaphanous 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cardiovascular system  
Connective tissue  
Digestive tract  
Endocrine system  
Respiratory tract  
(disease, detn. of genetic susceptibility to; detection of variations



- in DNA methylation profile of genes in detg. risk of disease)
- IT Behavior  
Development, mammalian postnatal  
Metabolism, animal  
Sexual behavior  
(disorder, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(doublecortins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(dysfedins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(dyskerins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Initiation factors (protein formation)  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(eIF-4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ect2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Flavoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(electron-transporting flavoproteins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(emerin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(emsl, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Probes (nucleic acid)  
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(for detection of uracil in DNA as indicator of methylation; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

- (fos, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(fps, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(frataxins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(gap junction-specific, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(gas-3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(gene EWS, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(gephyrins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Neurotrophic factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(glial-derived, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(glucose-6-phosphatase translocating, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(glutamine-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(glycine-transporting, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(gro1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(gro2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(guanylate cyclase activating, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT G proteins (guanine nucleotide-binding proteins)  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(gustducins, .alpha. subunit, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Immunoglobulins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(heavy chains, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteoglycans, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(heparitin sulfate-contg., glypican 3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(high-d., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(homeodomain-contg., Bagpipe, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(homeodomain-contg., cardiac, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(hsl, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (huntingtin, guanylate cyclase activating, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(hydrogen ion-transporting, vacuolar, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Brain, disease  
(injury, detn. of genetic susceptibility to behavioral consequences of; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(int-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(int3, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(int4, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT CD antigens  
Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(integrin .beta.5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT CD antigens  
Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(integrin .beta.7, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(interferon regulatory factor 4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(intermediate-d., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(intrinsic factor, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ipsa, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(lamins, A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(lamins, C, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(lck, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(low-d., 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(low-d., 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lymphokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(lymphotoxin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(lyn, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cytokines  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(macrophage-activating factor, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(maf, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Agglutinins and Lectins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (mannose-binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(marenostrians, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(mas1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(mcf2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(mdm-2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(mel, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Pituitary hormone receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(melanocortin 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Pituitary hormone receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(melanocortin 4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(membrane, limbic assocd., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(membrane, peroxisomal membrane protein 3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(menin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(met, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT DNA  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(methylation; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(microtubule-assocd., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(mitochondrial trifunctional, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(monoamine-transporting, synaptic vesicle, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(monoamine-transporting, vesicular, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Growth factors, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(myogenic, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(neurexins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Growth factors, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(neurite extension factors, 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Growth inhibitors, animal  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(neurite growth inhibitors, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(nexins, 2, DNA methylation profiles in gene for and disease

- susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(niacin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cytokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(oncostatin M, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(orexin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ovc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cyclin dependent kinase inhibitors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(p16INK4A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cyclin dependent kinase inhibitors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(p21CIP1/WAF1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cyclin dependent kinase inhibitors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(p27KIP1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Cyclin dependent kinase inhibitors  
(p57KIP2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(p73, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(peripherins (neuronal intermediate filament), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Mental disorder  
(personality disorder, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of



- disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(phosphatidylinositol transfer protein, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(pim-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(plakophilins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(polycystins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Phosphoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(pp56lck, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(pp60c-src, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(prohibitins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(prosaposins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Blood-coagulation factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(protein S, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Mental disorder  
(psychosis, detn. of genetic susceptibility to; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(pti-1 sea, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg.

- risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(pvt-1, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(r-myc, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(raf, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ralb, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ras, DNA methylation profiles in and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(rel, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transcription factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(repressors, necdin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(ret, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(retinal-binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(rxrfank, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

- (Biological study); USES (Uses)  
(semaphorins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT G proteins (guanine nucleotide-binding proteins)  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(smg-25A (small-mol.-wt. guanine nucleotide-binding, 25,000-mol.-wt., A), DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(sno, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Hedgehog protein  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(sonic, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(synapsin IIa, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(synapsin IIb, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(synapsin Ia, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(synapsin Ib, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(synaptic vesicle protein 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(synaptogyrin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Syndecans  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(syndecan 2, DNA methylation profiles in gene for and disease

- susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Syndecans  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(syndecan 4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Syndecans  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(syndecans-1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(tall, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(tc21, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Globulins, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(thyroxine-binding, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(tim, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(timp-2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(tumor-assocd., translationally-controlled 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(twist, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Fibroblast growth factor receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(type 1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Fibroblast growth factor receptors

- RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type 2, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Fibroblast growth factor receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type 3, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Prostanoid receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type EP2, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Endothelin receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type ETA, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Endothelin receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type ETB, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Activin receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type IIB, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type IV, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type IX, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type V, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type VI, DNA methylation profiles in gene for and disease  
susceptibility; detection of variations in DNA methylation profile of  
genes in detg. risk of disease)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
(Biological study); USES (Uses)  
(type VII, DNA methylation profiles in gene for and disease

- susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(type X, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(type XI, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Collagens, biological studies  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(type XVII, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(ubiquitin fusion degeneration 1-like, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Glycoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(undulins, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(v-Ki-ras2, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(vav-trk, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Lipoproteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(very-low-d., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Skin, disease  
(xeroderma pigmentosum, DNA methylation profiles in genes for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Gene, animal  
RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(yuasa, DNA methylation profiles and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Opioid receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

- (.kappa.-opioid, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Interferons  
Interleukin 8 receptors  
Thyroid hormone receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Actinins  
Spectrins  
Transforming growth factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.-tectorin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transport proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.-tocopherol transferring, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.M, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Macroglobulins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.2-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.2-macroglobulin, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL

- (Biological study); USES (Uses)  
(.alpha.4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.6, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta. chemokine receptor CCR2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta. chemokine receptor CCR3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Chemokine receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta. chemokine receptor CCR5, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Interferons  
Interleukin 8 receptors  
Thyroid hormone receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Spectrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.-adaptins, 3A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transforming growth factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.-induced, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transforming growth factor receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)



- (.beta.-transforming growth factor type II, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Proteins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.-transforming growth factor-binding, 2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Transforming growth factors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.2-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.1, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.2, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Microglobulins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.2-, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.3, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.4, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Integrins  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.6, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Interferons  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.gamma., DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT Interferon receptors  
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.gamma.-interferon, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)

- IT TCR .gamma..delta. (receptor)  
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (.delta.-chain, T Cell receptor .delta. chain, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT 9024-52-6 9026-51-1  
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (A, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT 9016-17-5  
 RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (D, DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT 9012-96-8, Cystathionase  
 RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (DNA methylation profiles in gene for and disease susceptibility; detection of variations in DNA methylation profile of genes in detg. risk of disease)
- IT 9000-90-2, .alpha.-Amylase 9000-94-6, Antithrombin III 9000-96-8, Arginase 9001-04-1, Pyruvate decarboxylase 9001-05-2, Catalase 9001-10-9, Pepsinogen 9001-12-1, Matrix metalloproteinase 8 9001-16-5, Cytochrome c oxidase 9001-18-7, Dihydrolipoamide dehydrogenase 9001-30-3, Blood-coagulation factor XII 9001-41-6, Phosphoglucose isomerase 9001-42-7, .alpha.-Glucosidase 9001-45-0, .beta.-Glucuronidase 9001-47-2, Glutaminase 9001-52-9, Fructose-1,6-diphosphatase 9001-67-6, Neuraminidase 9001-75-6, Pepsin 9001-77-8, Acid phosphatase 9001-80-3, Phosphofructokinase 9001-81-4, Phosphoglucomutase 9001-83-6, Phosphoglycerate kinase 9001-88-1, Phosphorylase kinase 9001-91-6, Plasminogen 9001-97-2, Glycogen branching enzyme 9002-02-2, Succinate dehydrogenase 9002-12-4, Urate oxidase 9002-64-6, Parathyroid hormone 9002-69-1D, Relaxin, isoforms 9002-76-0, Gastrin 9004-02-8, Lipoprotein lipase 9004-06-2, Matrix metalloproteinase 12 9007-43-6, Cytochrome c, biological studies 9012-25-3, Catechol-o-methyltransferase 9012-33-3, Hexosaminidase 9012-47-9, Amylo-1,6-glucosidase 9012-78-6, Choline acetyltransferase 9012-93-5, Ferrochelatase 9013-08-5, Phosphoenolpyruvate carboxykinase 9013-38-1, Dopamine .beta.-hydroxylase 9013-55-2, Blood-coagulation factor XI 9013-56-3, Factor XIII 9013-75-6, Histidase 9014-08-8, Enolase 9014-19-1, Pyruvate carboxylase 9014-36-2, Succinate thiokinase 9014-42-0, Thrombopoietin 9014-55-5, Tyrosine aminotransferase 9014-56-6, Glycogen synthase 9014-74-8, Enterokinase 9015-81-0, 17.beta. Hydroxysteroid dehydrogenase 9015-82-1, Angiotensin converting enzyme 9015-83-2, Phosphoribosyl pyrophosphate synthetase 9015-94-5, Renin, biological studies 9023-58-9, Arginosuccinate synthetase 9023-64-7, Glutamate cysteine ligase 9023-69-2, Asparagine synthetase 9023-70-5, Glutamine synthase 9023-78-3, Triosephosphate isomerase 9023-90-9, MethylmalonylCoA mutase 9023-93-2, Acetyl CoA carboxylase 9023-99-8, Cystathionine .beta. synthase 9024-58-2, Glutamate decarboxylase 9024-78-6, Kynureninase 9025-26-7, Cathepsin D 9025-32-5 9025-35-8, .alpha. Galactosidase A 9025-42-7, Mannosidase, .alpha. 9025-43-8, Mannosidase, .beta. 9025-62-1, Steroid sulfatase 9025-90-5, Hydroxyacyl glutathione hydrolase 9026-22-6, UDP-glucose pyrophosphorylase 9027-21-8, Carnosinase 9027-33-2, N-Acetyltransferase 9027-34-3 9027-43-4, 3-Oxoacid CoA transferase 9027-44-5, HMG-CoA synthase 9027-46-7, Thiolsase 9027-56-9, N-Acetylglucosaminidase 9027-88-7, Short chain Acyl CoA dehydrogenase 9027-89-8, Galactocerebrosidase 9027-96-7, Citrate synthase 9028-16-4,

Xylitol dehydrogenase 9028-31-3, Aldose reductase 9028-86-8, Aldehyde  
 dehydrogenase 9029-12-3, Glutamate dehydrogenase 9029-38-3, Sulfite  
 oxidase 9029-49-6, Homogentisate 1,2 dioxygenase 9029-61-2, Kynurenine  
 hydroxylase 9029-72-5, 4-Hydroxyphenylpyruvate dioxygenase 9029-73-6  
 9029-90-7, Carnitine acetyltransferase 9029-97-4, Acetyl CoA  
 acyltransferase 9030-08-4, UDP-glucuronosyltransferase 9030-21-1,  
 Purine nucleoside phosphorylase 9030-42-6, Ornithine  
 .delta.-aminotransferase 9030-50-6, Ketohexokinase 9030-66-4, Glycerol  
 kinase 9030-83-5, HMG-CoA lyase 9031-02-1, .alpha.-Ketoglutarate  
 dehydrogenase 9031-14-5, Lecithin cholesterol acyltransferase  
 9031-37-2, Ceruloplasmin 9031-72-5, Alcohol dehydrogenase 9031-86-1,  
 Aspartoacylase 9031-96-3, Peptidase A 9032-02-4 9032-15-9,  
 .alpha.-Dextrinase 9032-25-1, NADH cytochrome b5 reductase 9032-88-6,  
 Fumarase 9034-40-6, LHRH 9035-34-1, Cytochrome a 9035-58-9, Blood  
 coagulation Factor III 9035-74-9, Glycogen phosphorylase 9035-75-0,  
 Chymotrypsinogen 9036-22-0, Tyrosine hydroxylase 9036-23-1, Uridine  
 monophosphate kinase 9036-37-7, .delta.-Aminolevulinate dehydratase  
 9037-21-2, Tryptophan hydroxylase 9037-65-4, Fucosidase, .alpha.-L-  
 9039-53-6, Urokinase 9041-46-7 9042-64-2, DOPA decarboxylase  
 9044-85-3, 3.beta. Hydroxysteroid dehydrogenase 9047-22-7, Cathepsin B  
 9050-70-8, Proline dehydrogenase 9054-54-0, Transacylase 9054-65-3,  
 Branched chain aminotransferase 9054-75-5, Guanylyl cyclase 9054-84-6,  
 Xanthine dehydrogenase 9054-89-1, Superoxide dismutase 9054-94-8,  
 Galactosyltransferase, uridine diphosphogalactose-acetylglucosamine  
 9055-02-1, Prekallikrein 9055-67-8, Poly(ADPribose) synthetase  
 9056-26-2, Peptidase B 9059-22-7, Heme oxygenase 9061-61-4, Nerve  
 growth factor 9067-69-0, Acetylglactosaminyltransferase, [blood-group  
 substance] .alpha. 9068-68-2, Arylsulfatase A 9068-75-1, Glucagon  
 synthetase 9073-56-7, .alpha.-L-Iduronidase 9074-10-6, Biliverdin  
 reductase 9075-24-5, Aspartylglucosaminidase 9079-67-8, NADH  
 dehydrogenase 9080-21-1, 7-Dehydrocholesterol reductase 9082-57-9,  
 Inosine triphosphatase 9082-72-8 11016-39-0, Properdin 11085-36-2,  
 Human placental lactogen 12651-27-3, Transcobalamin 1 12651-28-4,  
 Transcobalamin 2 24305-27-9, Thyrotropin releasing hormone 33507-63-0,  
 Substance P 37184-63-7, Inositol monophosphatase 37211-69-1,  
 2,3-Bisphosphoglycerate mutase 37213-56-2, Factor D 37221-79-7,  
 Vasoactive intestinal polypeptide 37237-43-7, Galactosyltransferase,  
 uridine diphosphogalactose-glycoprotein 37255-32-6, Dihydrodiol  
 dehydrogenase 37255-38-2, GlutarylCoA dehydrogenase 37255-40-6,  
 Glycine dehydrogenase 37257-19-5, Dihydroxyacetone phosphate  
 acyltransferase 37270-64-7, AcylCoA thioesterase 37274-61-6,  
 Isovaleryl CoA dehydrogenase 37277-69-3, Fucosyltransferase 3  
 37288-40-7, .alpha.-Acetylglucosaminidase 37289-41-1, Sulfamidase  
 37290-90-7, Methionine synthase 37340-55-9, Uroporphyrinogen III  
 synthase 39346-44-6, Inter-.alpha.-trypsin inhibitor 39362-14-6,  
 Prolactin releasing hormone 39379-15-2, Neurotensin 39401-02-0,  
 Coumarin 7-hydroxylase 39419-81-3, Holocarboxylase synthetase  
 50936-59-9, Iduronate 2 sulfatase 52906-92-0, Motilin 53230-14-1,  
 Preprothrombin 53986-32-6, Protoporphyrinogen oxidase 54004-64-7,  
 Rhodopsin kinase 55354-43-3, Arylsulfatase B 56626-18-7,  
 Fucosyltransferase 56645-49-9, Cathepsin G 59299-00-2,  
 N-Acetylglactosamine-6-sulfate sulfatase 59536-73-1, Phosphomannomutase  
 59536-74-2, Long chain Acyl CoA dehydrogenase 60320-99-2,  
 N-Acetylglucosamine-6-sulfatase 60748-73-4, Cathepsin H 61512-21-8,  
 Thymosin 62213-29-0, Enoyl CoA isomerase 62229-50-9, Epidermal growth  
 factor 65802-85-9, Prostaglandin D synthase 66796-54-1,  
 Proopiomelanocortin 67526-96-9, Galactosyltransferase, uridine  
 diphosphogalactose-acetylglactosamine 3.beta.- 67763-96-6, Insulin like  
 growth factor 1 67763-97-7, Insulin like growth factor 2 68651-94-5  
 70356-40-0, DNA glycosylase 71822-25-8, 5,10-Methylenetetrahydrofolate  
 reductase (NADPH) 72497-28-0, Cytochrome P 450 8 74506-38-0, Medium  
 chain Acyl CoA dehydrogenase 74812-49-0, Parkin 74870-74-9, UMP  
 synthetase 75922-89-3, Pyrroline-5-carboxylate synthetase 76901-00-3,

Platelet activating factor acetylhydrolase 78689-77-7,  
 6-Phosphofructo-2-kinase 78849-38-4, Leukin 78990-62-2, Calpain  
 79747-53-8, Protein tyrosine phosphatase 79955-99-0, Matrix  
 metalloproteinase 3 80043-53-4, Gastrin releasing peptide 80295-33-6,  
 Complement C1q 80295-34-7, Complement C1r 80295-35-8, Complement C1s  
 80295-38-1, Complement C1 inhibitor 80295-40-5, Complement component C2  
 80295-41-6, Complement component C3 80295-49-4, Complement C4A  
 80295-50-7, Complement C4B 80295-53-0, Complement C5 80295-56-3,  
 Complement C6 80295-57-4, Complement C7 80295-58-5, Complement C8  
 80295-59-6, Complement C9 80295-65-4, Complement factor H 81604-65-1,  
 Heparin Cofactor II 82707-54-8, Neprilysin 82869-38-3, 2,4-Dienoyl CoA  
 reductase 86551-03-3, Electron-transferring flavoprotein dehydrogenase  
 88402-55-5, Prodynorphin 90597-47-0, Peptidylglycine .alpha.-amidating  
 monooxygenase 90698-32-1, Leukotriene C4 synthase 91448-99-6, Cystatin  
 C 92769-12-5, Proliferin 93443-35-7, Preproenkephalin 94716-09-3,  
 Cathepsin K 95567-84-3, Dihydrolipoamide transacylase 96231-41-3,  
 .beta.-Inhibin 97089-82-2, 6-Pyruvoyltetrahydropterin synthase  
 97501-92-3, Chymase

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
 (Biological study); USES (Uses)

(DNA methylation profiles in gene for and disease susceptibility;  
 detection of variations in DNA methylation profile of genes in detg.  
 risk of disease)

IT 99194-04-4, Cystatin B 99676-46-7, Neuroendocrine convertase 1  
 102577-23-1, Neurokinin B 103106-89-4, .alpha.-Inhibin 103370-86-1,  
 Parathyroid hormone related peptide 104118-56-1, Leukotriene A4 synthase  
 106283-10-7, Inositol-1,4,5-trisphosphate kinase 106602-62-4, Islet  
 amyloid polypeptide 106956-32-5, Oncostatin M 109489-77-2, Tetranectin  
 110910-42-4, Cathepsin E 111694-13-4, Inositol polyphosphate  
 1-phosphatase 114051-78-4, LCK tyrosine kinase 114101-80-3, ProMelanin  
 concentrating hormone 114949-22-3, Activin 115966-66-0, Histatin 1  
 115966-67-1, Histatin 3 117147-70-3, Amphiregulin 119418-04-1, Galanin  
 120178-12-3, Telomerase 121797-22-6, Histatin 2 122191-40-6, Caspase 1  
 122879-69-0, Endothelin 2 123626-67-5, Endothelin 1 124861-55-8  
 125692-40-2, Endothelin 3 125978-95-2, Nitric oxide synthase  
 134712-57-5, Oxygenase, steroid 27-mono- 138238-81-0, Endothelin  
 converting enzyme 138359-29-2 139466-48-1, Protein C inhibitor  
 139639-23-9, Plasminogen activator, Tissue-type 140158-49-2, Hippocampal  
 cholinergic neurostimulating peptide 140208-23-7, Plasminogen activator  
 inhibitor 1 140208-24-8, Tissue inhibitor of metalloproteinase 1  
 140610-48-6, Matrix metalloproteinase 10 141256-52-2, Matrix  
 metalloproteinase 7 141349-86-2, Cyclin dependent kinase 2  
 141436-78-4, Protein kinase C 141588-27-4, Protein kinase G  
 142008-29-5, Cyclic AMP-dependent protein kinase 142243-03-6,  
 Plasminogen activator inhibitor 2 142805-58-1, MEK kinase 143375-65-9,  
 Cyclin dependent kinase 1 144697-17-6, c-Src tyrosine kinase  
 145267-01-2, Matrix metalloproteinase 11 145539-84-0, Exostosis 2  
 145809-21-8, Tissue inhibitor of metalloproteinase 3 146480-35-5, Matrix  
 metalloproteinase 2 146480-36-6, Matrix metalloproteinase 9  
 146702-84-3, MEK kinase 147014-96-8, Cyclin dependent kinase 5  
 147014-97-9, Cyclin dependent kinase 4 148047-29-4, Gene TEK protein  
 tyrosine kinase 148640-14-6, Protein kinase B 149147-12-6, Bruton's  
 tyrosine kinase 149885-72-3, Protein kinase HRI 150605-49-5,  
 Palmitoylprotein thioesterase 151662-20-3, DM Kinase 152478-56-3,  
 Janus kinase 1 152478-57-4, Janus kinase 2 153190-71-7, Cyclin  
 dependent kinase 3 154531-34-7, Epidermal growth factor-like growth  
 factor, heparin-binding 157482-36-5, Janus kinase 3 158736-49-3,  
 .beta.-Secretase 161052-08-0, TIE receptor tyrosine kinase  
 161384-17-4, Matrix metalloproteinase 14 169494-85-3, Leptin  
 169592-56-7, Caspase 3 169592-62-5, Cyclin dependent kinase 10  
 170347-52-1, Gene Nsk2 protein kinase 172308-17-7, Matrix  
 metalloproteinase 15 175449-82-8, Matrix metalloproteinase 13  
 179241-78-2, Caspase 8 180189-96-2, Caspase 9 182372-14-1, Caspase 2

182372-15-2, Caspase 6 182762-08-9, Caspase 4 182938-13-2,  
 Cyclin-dependent kinase 9 182970-56-5, Matrix metalloproteinase 16  
 185402-46-4, Phytanoyl CoA hydroxylase 186207-03-4, Tissue inhibitor of  
 metalloproteinase 4 186270-49-5, Angiopoietin 1 188364-80-9, Matrix  
 metalloproteinase 19 189088-85-5, Caspase 10 189258-14-8, Caspase 7  
 192465-11-5, Caspase 5 193830-08-9, Growth/differentiation factor 5  
 194368-66-6, Angiopoietin 2 202420-40-4, Gene STK11 protein kinase  
 203810-08-6, Matrix metalloproteinase 17 205944-50-9, Osteoprotegerin  
 207004-87-3, Methionine synthase reductase 213903-53-8, Cryptochrome 1  
 216864-07-2, .alpha.-Synuclein 216864-08-3, .beta.-Synuclein  
 216864-09-4, .gamma.-Synuclein 216974-70-8, Ephrin B2 receptor kinase  
 227604-60-6, Proteinase, matrix metallo-, MT5-MMP 245359-74-4, Orexin  
 248259-60-1, Ephrin A8 receptor kinase 252351-68-1, Leukotriene B4  
 synthase 252351-86-3, Matrix metalloproteinase 6 252354-25-9, Gene  
 STK2 protein kinase 278616-03-8, Peptidase E 303014-92-8, Cyclin  
 dependent kinase 6 329736-03-0, Cytochrome P 450 3A4 329764-85-4,  
 Cytochrome P 450 1A1 329900-75-6, Prostaglandin endoperoxide synthase 2  
 329978-01-0, Cytochrome P 450 2C9 330196-64-0, Cytochrome P 450 1A2  
 330196-93-5, Cytochrome P 450 2E1 330197-29-0, Cyclin-dependent kinase 7  
 330207-11-9, Cytochrome P 450 2B6 330207-13-1, Cytochrome P 450 2C8  
 330207-52-8, Cytochrome P 450 4B1 330589-90-7, Cytochrome P 450 2C19  
 330596-22-0, Cytochrome P 450 1B1 330597-62-1, Cytochrome P 450 2D6  
 330824-80-1, Cytochrome P 450 CYP21 331823-27-9, Cytochrome P 450 2A1  
 336193-98-7, Exostosin 1 336874-97-6, Cytochrome P 450 3A5  
 338454-52-7, .gamma.-Secretase 338455-07-5, .alpha.-Secretase  
 338969-62-3, Cytochrome P 450 2A3 344576-15-4, Cytochrome P 450 3A7  
 350986-45-7, Cytochrome P 450 2C18 351496-11-2, Cytochrome P 450 4A11  
 359643-03-1, Cytochrome P 450 2F1 359868-69-2, Cytochrome P 450 2J2  
 360055-02-3, Myotubularin 360069-51-8, Cryptochrome 2 362479-32-1,  
 Protein phosphatase 1 403652-37-9, CDK8 kinase 436097-19-7, Cytochrome  
 P 450 2A7 440352-47-6, Cytochrome P 450 4F3 440354-11-0, P 450 7A  
 440354-98-3, Cytochrome P 450 11A 440355-29-3, Cytochrome P 450 11B2  
 440356-60-5, Cytochrome P 450 27B1 440356-80-9, Cytochrome P 450 51  
 440363-51-9, P 450 2A13 440363-68-8, P 450 3A3 440363-88-2, P 450 5A1  
 440365-05-9, Cytochrome P 450 17 440367-91-9, Cytochrome CYP19  
 440368-52-5, Cytochrome CYP24

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
 (Biological study); USES (Uses)

(DNA methylation profiles in gene for and disease susceptibility;  
 detection of variations in DNA methylation profile of genes in detg.  
 risk of disease)

IT 37205-61-1, Proteinase inhibitor

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
 (Biological study); USES (Uses)

(I, DNA methylation profiles in gene for and disease susceptibility;  
 detection of variations in DNA methylation profile of genes in detg.  
 risk of disease)

IT 141467-21-2

RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL  
 (Biological study); USES (Uses)

(II, DNA methylation profiles in gene for and disease susceptibility;  
 detection of variations in DNA methylation profile of genes in detg.  
 risk of disease)

IT 9031-54-3, Sphingomyelinase

RL: ANT (Analyte); BSU (Biological study, unclassified); THU (Therapeutic  
 use); ANST (Analytical study); BIOL (Biological study); USES (Uses)

(SEMA4, DNA methylation profiles disease susceptibility; detection of  
 variations in DNA methylation profile of genes in detg. risk of  
 disease)

L98 ANSWER 8 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2001:41655 HCAPLUS

DN 134:365095

- TI **Collagenases** in different categories of peri-implant vertical  
bone loss
- AU Ma, J.; Kitti, U.; Teronen, O.; Sorsa, T.; Husa, V.; Laine, P.; Ronka, H.;  
Salo, T.; Lindqvist, C.; Konttinen, Y. T.
- CS Department of Anatomy, University of Helsinki, Helsinki, FIN-00014,  
Finland
- SO Journal of Dental Research (2000), 79(11), 1870-1873  
CODEN: JDREAF; ISSN: 0022-0345
- PB International Association for Dental Research
- DT Journal
- LA English
- CC 14-7 (Mammalian Pathological Biochemistry)
- AB The loosening of dental implants is assocd. with peri-implant vertical  
bone loss. The mechanisms and mediators of this bone  
destruction are not known. To test the hypothesis that  
collagenase-2 and collagenase-3 might be  
markers or maybe even mediators in this process, we measured  
collagenase-2 (time-resolved immunofluorometric assay) and  
collagenase-3 (quant. immunoblot) in peri-implant sulcus  
fluid in 49 implant sites in 13 patients. Vertical bone loss  
was graded as being < 1 mm, from 1 to 3 mm, or > 3 mm. The severity of  
inflammation, as rated according to Gingival Index, did not correlate with  
the category of bone loss (p > 0.05). Collagenase-2  
and collagenase-3 were higher (p < 0.05) in the group  
which had lost > 3 mm of bone than in the two other groups.  
Gingival Index is not a clin. important marker for bone  
loss, but collagenase-2 and collagenase-3 in  
peri-implant sulcus fluid are. They might participate in peri-implant  
osteolysis.
- ST collagenase dental bone loss marker implant
- IT Biomarkers (biological responses)  
Neutrophil  
Osteoclast  
(collagenase-2 and collagenase-3 as  
markers of dental peri-implant vertical bone loss in  
human)
- IT Bone  
(demineralization; collagenase-2 and collagenase-  
3 as markers of dental peri-implant vertical  
bone loss in human)
- IT Dental materials and appliances  
(implants; collagenase-2 and collagenase-3  
as markers of dental peri-implant vertical bone  
loss in human)
- IT Tooth  
(mesenchyme; collagenase-2 and collagenase-  
3 as markers of dental peri-implant vertical  
bone loss in human)
- IT 175449-82-8, Collagenase-3  
RL: BOC (Biological occurrence); BSU (Biological study,  
unclassified); THU (Therapeutic use); BIOL (Biological study); OCCU  
(Occurrence); USES (Uses)  
(collagenase-2 and collagenase-3 as  
markers of dental peri-implant vertical bone loss in  
human)
- IT 9001-12-1, Collagenase  
RL: BOC (Biological occurrence); BSU (Biological study,  
unclassified); THU (Therapeutic use); BIOL (Biological study); OCCU  
(Occurrence); USES (Uses)  
(type 2; collagenase-2 and collagenase-3  
as markers of dental peri-implant vertical bone  
loss in human)
- RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L98 ANSWER 9 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:848855 HCAPLUS

DN 134:54990

TI Induction of collagenase-3 (MMP-13)  
 ) in rheumatoid arthritis synovial  
 fibroblasts

AU Moore, Bryan A.; Aznavoorian, Sadie; Engler, Jeffrey A.; Windsor, L. Jack  
 CS Research Center in Oral Cancer, University of Alabama at Birmingham,  
 Birmingham, AL, 35294, USA

SO Biochimica et Biophysica Acta (2000), 1502(2), 307-318  
 CODEN: BBACAQ; ISSN: 0006-3002

PB Elsevier Science B.V.

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB There is a growing body of evidence that implicates matrix metalloproteinases (MMPs) as major players in numerous diseased conditions. The articular cartilage degradn. that is characteristic of rheumatoid arthritis (RA) is believed to be mediated by the collagenase subfamily of matrix metalloproteinases. The preference of collagenase-3 (CL-3) for collagen type II makes it a likely candidate in the turnover of articular cartilage and a potential target for drug development. In this study, RA synovial membrane tissue was shown to express CL-3 mRNA by reverse transcriptase-polymerase chain reaction (RT-PCR) and protein by immunohistochem. Fibroblasts isolated and cultured from RA synovial membrane tissue were induced to express CL-3 mRNA. CL-3 mRNA was detected after PMA treatment in 16 of the 18 RA synovial membrane fibroblast cell lines established for this study. These fibroblasts also expressed mRNA for collagenase-1 (CL-1, MMP-1), membrane type-1 matrix metalloproteinase, gelatinase A, gelatinase B, stromelysin-1, stromelysin-2, TIMP-1, and TIMP-2. They were further shown to express CL-1 mRNA constitutively and CL-3 mRNA only after stimulation with PMA, IL-1, TGF-.beta.1, TNF-.alpha., or IL-6 with IL-6sR. These fibroblasts also expressed after induction both CL-1 and CL-3 at the protein level as detd. by Western blot analyses and immunofluorescence.

ST collagenase 3 induction rheumatoid

- arthritis synovial fibroblast**
- IT Interleukin 6  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(induction by sol. receptor and; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**
- IT Interleukin 1  
Tumor necrosis factors  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(induction by; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**
- IT Animal cell line  
Fibroblast  
**Rheumatoid arthritis**  
**Synovial membrane**  
Transcription, genetic  
(induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans**)
- IT mRNA  
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence); PROC (Process)  
(induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans**)
- IT Gene, animal  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans**)
- IT Interleukin 6 receptors  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(sol., induction by interleukin-6 and; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**
- IT Transforming growth factors  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(.beta.1-, induction by; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**
- IT 175449-82-8, Collagenase 3  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans**)
- IT 141436-78-4, Protein kinase C  
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(induction via; induction of **collagenase-3 (MMP-13) in rheumatoid arthritis synovial fibroblasts from humans in relation to)**



IT 79955-99-0, Stromelysin 1 124861-55-8, Proteinase inhibitor, TIMP-2  
140208-24-8, Proteinase inhibitor, TIMP-1 140610-48-6, Stromelysin-2  
146480-35-5, Gelatinase A 146480-36-6,  
Gelatinase B 161384-17-4, Membrane type-1  
matrix metalloproteinase

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(mRNA; induction of collagenase-3 (  
MMP-13) in rheumatoid arthritis  
synovial fibroblasts from humans in relation to)

IT 9001-12-1, Collagenase

RL: BOC (Biological occurrence); BSU (Biological study,  
unclassified); BIOL (Biological study); OCCU (Occurrence)  
(type 1; induction of collagenase-3 (MMP-  
13) in rheumatoid arthritis  
synovial fibroblasts from humans in relation to)

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L98 ANSWER 10 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:722963 HCAPLUS

DN 133:361612

TI Matrix metalloproteinase-13 expression in  
rabbit knee joint connective tissues:  
influence of maturation and response to injury

AU Le Graverand, Marie-Pierre Hellio; Eggerer, Jonna; Sciore, Paul; Reno,  
Carol; Vignon, Eric; Otterness, Ivan; Hart, David A.

CS McCaig Center for Joint Injury and Arthritis Research, Faculty of  
Medicine, University of Calgary, AB, T2N 4N1, Can.

SO Matrix Biology (2000), 19(5), 431-441  
CODEN: MTBOEC; ISSN: 0945-053X

PB Elsevier Science B.V.

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB The hypothesis of the present work was that expression of matrix

**metalloproteinase-13 (MMP-13, collagenase-3)** would be induced during conditions involving important matrix remodeling such as ligament maturation, scar healing and joint instability. Therefore, **MMP-13** expression in the medial collateral ligament (MCL) during the variable situations of tissue maturation and healing was assessed. **MMP-13** expression in three intra-articular **connective tissues** of the knee (i.e. articular **cartilage**, menisci and **synovium**) following the transection of the anterior cruciate ligament of the knee was evaluated at 3 and 8 wk post-injury. **MMP-13 mRNA** (semi-quant. RT-PCR) and protein (immunohistochem. and Western blotting) were detected in all of the tissues studied. Significantly higher **MCL mRNA** levels for **MMP-13** were detected during the early phases of tissue maturation (i.e. 29 days in utero and 2-mo-old rabbits) compared to later phases (5- and 12-mo-old rabbits). This pattern of expression was recapitulated following MCL injury, with very high levels of expression in scar tissue at 3 wk post-injury and then a decline to levels not significantly different from control values by 14 wk. Elevated **mRNA** levels correlated with increased protein levels for **MMP-13** in both menisci and **synovium** following the transection of the anterior cruciate ligament and during medial collateral ligament healing. These results indicate that **MMP-13** expression is regulated by a no. of variables and that high levels of expression occur in situations when **connective tissue** remodeling is very active.

- ST matrix **metalloproteinase MMP13** knee joint  
**connective tissue** maturation injury
- IT Ligament  
 (anterior cruciate, injury; **matrix metalloproteinase -13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Cartilage  
 (articular; **matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Embryo, animal  
 (fetus; **matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Joint, anatomical  
 (knee; **matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT **Connective tissue**  
 Development, mammalian postnatal  
 Granulation tissue  
**Synovial membrane**  
 Transcription, genetic  
 (**matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT **mRNA**  
 RL: **BOC (Biological occurrence)**; BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)  
 (**matrix metalloproteinase-13** expression in rabbit knee joint **connective tissues** and influence of maturation and response to injury)
- IT Ligament  
 (medial collateral, injury; **matrix metalloproteinase -13** expression in rabbit knee joint **connective tissues** and influence of maturation and

response to injury)  
 IT **Joint, anatomical**  
 (meniscus; **matrix metalloproteinase-13**  
 expression in rabbit knee **joint connective**  
**tissues** and influence of maturation and response to injury)  
 IT **175449-82-8, Matrix metalloproteinase-**  
**13**  
 RL: BOC (**Biological occurrence**); BSU (Biological study,  
 unclassified); BIOL (Biological study); OCCU (**Occurrence**)  
 (**matrix metalloproteinase-13** expression  
 in rabbit knee **joint connective tissues**  
 and influence of maturation and response to injury)  
 RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD  
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L98 ANSWER 11 OF 28 HCAPLUS COPYRIGHT 2002 ACS  
 AN 2000:686096 HCAPLUS  
 DN 133:221243  
 TI **Collagenase 3 as disease marker for**  
**joint degeneration in rheumatoid arthritis and**  
**application for the prognosis and determination of**  
**genetic predisposition**  
 IN **Wernicke, Dirk; Gromnica-Ihle, Erika; Freudiger,**  
**Dirk; Schulze, Westhoff Claudia**  
 PA Max-Delbrueck-Centrum fuer Molekulare Medizin, Germany  
 SO Ger. Offen., 10 pp.

CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC ICM C12Q001-34  
 ICS A61K048-00  
 CC 14-11 (Mammalian Pathological Biochemistry)  
 Section cross-reference(s): 1, 7

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19913428	A1	20000928	DE 1999-19913428	19990325
	WO 2000058502	A2	20001005	WO 2000-DE881	20000324
	W: JP, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	WO 2000058502	A3	20001116	WO 2000-DE881	20000324
	W: JP, US				
	RW: AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRAI DE 1999-19913428 A 19990325

AB The invention concerns **collagenase 3** as disease marker for the **prognosis** of joint degeneration in **rheumatoid arthritis** patients by detg. **collagenase 3 mRNA** expression and the catalytic activity of the enzyme in **synovial membrane**, **synovial fluid** or blood. In addn., other markers are measured: **HLA-antigens**, **MT1-MMP** and/or **Gelatinase A**. The invention also concerns the detn. of the markers during therapy with specific or non-specific **collagenase-3** inhibitors.

ST **collagenase** disease marker joint degeneration **rheumatoid arthritis** genetic predisposition

IT Histocompatibility antigens  
 RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); USES (Uses)  
 (HLA; **collagenase 3** as disease marker for joint degeneration in **rheumatoid arthritis** and application for **prognosis** and detn. of genetic predisposition)

IT Blood analysis  
 Northern blot hybridization  
 Rheumatoid arthritis  
 Susceptibility (genetic)  
 Synovial fluid  
 Synovial membrane  
 (collagenase 3 as disease marker for joint degeneration in **rheumatoid arthritis** and application for **prognosis** and detn. of genetic predisposition)

IT mRNA  
 RL: ANT (Analyte); BOC (Biological occurrence); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); OCCU (Occurrence); USES (Uses)  
 (collagenase 3 as disease marker for joint degeneration in **rheumatoid arthritis** and application for **prognosis** and detn. of genetic predisposition)

IT Antirheumatic agents  
 (disease modifying, DMARD; **collagenase 3** as disease marker for joint degeneration in **rheumatoid arthritis** and application for **prognosis** and detn. of

- genetic predisposition)  
 IT 146480-35-5, Gelatinase A 161384-17-4  
 , MT1-MMP 175449-82-8, Collagenase  
 3  
 RL: ANT (Analyte); BOC (Biological occurrence); BSU  
 (Biological study, unclassified); THU (Therapeutic use); ANST  
 (Analytical study); BIOL (Biological study); OCCU  
 (Occurrence); USES (Uses)  
 (collagenase 3 as disease marker for  
 joint degeneration in rheumatoid arthritis  
 and application for prognosis and detn. of genetic  
 predisposition)
- IT 50-24-8, Prednisolone 54-05-7, Chloroquine 59-05-2, Methotrexate  
 446-86-6, Azathioprine 599-79-1, Sulfasalazine 12244-57-4,  
 Gold-sodiumthiomalate  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological  
 study, unclassified); BIOL (Biological study)  
 (collagenase 3 as disease marker for  
 joint degeneration in rheumatoid arthritis  
 and application for prognosis and detn. of genetic  
 predisposition)
- L98 ANSWER 12 OF 28 HCAPLUS COPYRIGHT 2002 ACS  
 AN 2000:649726 HCAPLUS  
 DN 133:320050  
 TI Spatiotemporal change of rat collagenase (MMP-  
 13) mRNA expression in the development of the rat  
 femoral neck  
 AU Hayami, Tadashi; Endo, Naoto; Tokunaga, Kunihiro; Yamagiwa, Hiroshi;  
 Hatano, Hiroshi; Uchida, Motoyuki; Takahashi, Hideaki E.  
 CS Department of Orthopedic Surgery, Niigata University School of Medicine,  
 Niigata, 951-8510, Japan  
 SO Journal of Bone and Mineral Metabolism (2000), 18(4), 185-193  
 CODEN: JBMME4; ISSN: 0914-8779  
 PB Springer-Verlag Tokyo  
 DT Journal  
 LA English  
 CC 13-3 (Mammalian Biochemistry)  
 AB The interepiphyseal region between the greater trochanter and the capital  
 femoral epiphysis and the medioproximal portion of the femoral neck  
 exhibit extensive morphol. changes during the first 4 wk after birth in  
 rats. Previous reports show that **matrix**  
**metalloproteinase-13 (MMP-13, rat**  
**collagenase) mRNA** is expressed in **bone** and  
**cartilage** during embryonal development and fracture healing. We  
 examd. **MMP-13 mRNA** expression and compared  
 it with the distribution of **osteopontin** and **osteocalcin**  
**mRNA** in the femoral neck. Moreover, we examd. histomorphometric  
 anal. in the femoral neck where the morphol. changes rapidly.  
 Histomorphometric anal. of the 4-wk-old rat femoral neck showed a high  
 rate of **bone** formation and resorption in the region where shape  
 changed rapidly. **Osteopontin mRNA** was expressed  
 diffusely along the endosteum. In contrast, **MMP-13**  
**mRNA** expression was restricted to the medial endosteal portion  
 near the **cartilage-bone** interface of the femoral neck  
 in 15- and 28-day-old rats and in the deepest endosteal interepiphyseal  
 region of 15-day-old rats. **MMP-13 mRNA**  
 -expressing **osteoblastic** cells were also expressing  
**osteopontin** but not **osteocalcin mRNA**.  
**MMP-13 mRNA**-expressing cells differ from  
 tartrate-resistant acid phosphatase (TRAP) -pos. cells, and **MMP-**  
**13 mRNA**-pos. cells are located adjacent to TRAP-pos.  
 cells. The results of the site- and cell-specific expression of

**MMP-13**, taken together with its enzymic property, suggest that **MMP-13** plays an important role in morphol. changes in the rat femur, at least during the third and fourth week after birth, and that **MMP-13** itself is involved in the interaction between **osteoblastic** and TRAP-pos. cells.

ST **collagenase osteopontin RNA**  
**osteoblast femur bone development**

IT **mRNA**  
RL: **BOC (Biological occurrence)**; BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)  
(**collagenase (MMP-13)**; spatiotemporal change of rat **collagenase (MMP-13)** mRNA expression in development of rat femoral neck)

IT **Bone**  
(endosteum; spatiotemporal change of rat **collagenase (MMP-13)** mRNA expression in development of rat femoral neck)

IT **Bone**  
(femur; spatiotemporal change of rat **collagenase (MMP-13)** mRNA expression in development of rat femoral neck)

IT **mRNA**  
RL: **BOC (Biological occurrence)**; BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)  
(**osteopontin**; spatiotemporal change of rat **collagenase (MMP-13)** mRNA expression in development of rat femoral neck)

IT **Bone formation**  
Development, mammalian postnatal  
**Osteoblast**  
(spatiotemporal change of rat **collagenase (MMP-13)** mRNA expression in development of rat femoral neck)

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L98 ANSWER 13 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:444772 HCAPLUS

DN 133:333413

TI Matrix **metalloproteinases** and tissue inhibitors of  
**metalloproteinases** in **synovial fluids** from  
 patients with **rheumatoid arthritis** or  
**osteoarthritis**

AU Yoshihara, Yasuo; Nakamura, Hiroyuki; Obata, Ken'ichi; Yamada, Harumoto;  
 Hayakawa, Taro; Fujikawa, Kyosuke; Okada, Yasunori

CS Department of Orthopaedic Surgery, National Defence Medical College, UK

SO Annals of the Rheumatic Diseases (2000), 59(6), 455-461  
 CODEN: ARDIAO; ISSN: 0003-4967

PB BMJ Publishing Group

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB Matrix **metalloproteinases** (**MMPs**) are expressed in  
 joint tissues of patients with **rheumatoid**  
**arthritis** (RA) and **osteoarthritis** (OA). The objective  
 of this study was to define the steady state levels of 7 different  
**MMPs** and 2 tissue inhibitors of **metalloproteinases**  
 (**TIMPs**) as well as the potential **metalloproteinase** activity in  
 the **synovial fluid** (SF) to provide more insight into  
 the role of **MMPs** in **cartilage** destruction in RA and  
 OA. Levels of **MMP-1**, **MMP-2**, **MMP-3**, **MMP-7**, **MMP-8**, **MMP-9**, **MMP-13**, **TIMP-1**, and **TIMP-2** in SF aspirated from knee joints  
 of 97 patients with RA and 103 patients with OA were measured by the  
 corresponding one step sandwich enzyme immunoassays. Proteolytic activity  
 of **MMPs** in these SFs was examd. in an assay using  
 [3H]carboxymethylated transferrin substrate in the presence of inhibitors  
 of Ser and Cys proteinases after activation with p-aminophenylmercuric  
 acetate (APMA). Destruction of RA knee joints was radiog.  
 evaluated. Levels of **MMP-1**, **MMP-2**,  
**MMP-3**, **MMP-8**, and **MMP-9** were significantly  
 higher in RA SF than in OA SF. **MMP-7** and **MMP-13**  
 were detectable in more than 45% of RA SFs and in less than 20%  
 of OA SFs, resp. Among the **MMPs** examd., **MMP-3** levels  
 were extremely high compared with those of other **MMPs**. Direct  
 correlations were seen between the levels of **MMP-1** and  
**MMP-3** and between those of **MMP-8** and **MMP-9** in  
 RA SF. Although the levels of **MMP-1** and **MMP-3**  
 increased even in the early stage of RA, those of **MMP-8** and  
**MMP-9** were low in the early stage and increased with the  
 progression of RA. Molar ratios of the total amts. of the **MMPs**  
 to those of the **TIMPs** were 5.2-fold higher in patients with RA than in OA,  
 which was significant. APMA-activated **metalloproteinase**  
 activity in SF showed a similar result, and a direct correlation was seen

between the molar ratios and the activity in RA SF. These results show that high levels of **MMP-1, MMP-2, MMP-3, MMP-8, MMP-9**, and **TIMP-1** are present in RA SF and suggest that once these **MMPs** are fully activated, they have an imbalance against **TIMPs**, which may contribute to the **cartilage** destruction in RA.

ST matrix **metalloproteinase** tissue inhibitor **synovial fluid rheumatoid arthritis; MMP TIMP synovial fluid rheumatoid arthritis; osteoarthritis MMP TIMP synovial fluid**

IT **Osteoarthritis**  
**Rheumatoid arthritis**  
**Synovial fluid**  
 (MMPs and TIMPs in **synovial fluids** from **rheumatoid arthritis or osteoarthritis**)

IT 9001-12-1, **MMP-1**  
 RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
 (MMP-1, **MMP-8**; **MMPs** and **TIMPs** in **synovial fluids** from **rheumatoid arthritis or osteoarthritis**)

IT 79955-99-0, **MMP-3** 124861-55-8, **TIMP-2** 140208-24-8, **TIMP-1** 141256-52-2, **MMP 7** 141907-41-7, **Matrix metalloproteinase** 145266-99-5, **Metalloproteinase inhibitor** 146480-35-5, **MMP 2** 146480-36-6, **MMP 9** 175449-82-8, **MMP-13**  
 RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
 (MMPs and TIMPs in **synovial fluids** from **rheumatoid arthritis or osteoarthritis**)

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L98 ANSWER 14 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:268920 HCAPLUS

DN 132:306260

TI Localization of matrix **metalloproteinases** and TIMP-2 in resorbing mouse **bone**

AU Dew, Gary; Murphy, Gillian; Stanton, Heather; Vallon, Rudiger; Angel, Peter; Reynolds, John J.; Hembry, Rosalind M.

CS Strangeways Research Laboratory, Cambridge, CB1 8RN, UK

SO Cell & Tissue Research (2000), 299(3), 385-394

CODEN: CTSRCS; ISSN: 0302-766X

PB Springer-Verlag

DT Journal

LA English

CC 13-6 (Mammalian Biochemistry)

AB There is strong evidence that matrix **metalloproteinases** (**MMPs**) play a crucial role during **osteogenesis** and **bone** remodeling. Their synthesis by **osteoblasts** has been demonstrated during **osteoid** degrdn. prior to resorption of mineralized matrix by **osteoclasts** and their activities are regulated by tissue inhibitors of **metalloproteinases** (TIMPs). Here, the authors developed and utilized specific polyclonal antibodies to assess the presence of **collagenase** (**MMP13**), **stromelysin 1** (**MMP3**), **gelatinase A** (**MMP2**), **gelatinase B** (**MMP9**), and TIMP-2 in both freshly isolated neonatal mouse calvariae and tissues cultured with and without **bone**-resorbing agents. Monensin was added toward the end of the culture period in order to promote intracellular accumulation of proteins and facilitate **antigen** detection. In addn., **bone** sections were stained for the **osteoclast marker**, tartrate-resistant acid phosphatase (TRAP). In uncultured tissues. the **bone** surfaces had isolated foci of

- collagenase staining, and cartilage matrix stained for gelatinase B (MMP9) and TIMP-2. Calvariae cultured for as little as 3 h with monensin revealed intracellular staining for MMPs and TIMP-2 in mesenchymal tissues, as well as in cells lining the bone plates. The addn. of cytokines to stimulate bone resorption resulted in pronounced TRAP activity along bone surfaces, indicating active resorption. There was a marked up-regulation of enzyme synthesis, with matrix staining for collagenase and gelatinase B obsd. in regions of eroded bone. Increased staining for TIMP-2 was also obsd. in assocn. with increased synthesis of MMPs. The new antibodies to murine MMPs should prove valuable in future studies of matrix degrdn.
- ST matrix metalloproteinase TIMP2 localization bone resorption
- IT Osteoclast  
(localization of matrix metalloproteinases and TIMP-2 in resorbing mouse bone)
- IT Bone  
(resorption; localization of matrix metalloproteinases and TIMP-2 in resorbing mouse bone)
- IT 79955-99-0, Matrix metalloproteinase 3 124861-55-8, TIMP-2 146480-35-5, Matrix metalloproteinase 2 146480-36-6, Matrix metalloproteinase 9 175449-82-8, Matrix metalloproteinase 13  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(localization of matrix metalloproteinases and TIMP-2 in resorbing mouse bone)
- IT 9001-77-8, Acid phosphatase  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(tartrate-resistant; localization of matrix metalloproteinases and TIMP-2 in resorbing mouse bone)
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L98 ANSWER 15 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:64837 HCAPLUS

DN 132:234729

TI Different **bone** growth rates are associated with changes in the expression pattern of types II and X collagens and **collagenase** 3 in proximal growth plates of the rat tibia

AU Alvarez, Jesus; Balbin, Milagros; Santos, Fernando; Fernandez, Marta; Ferrando, Susana; Lopez, Jose M.

CS Department of Morphology and Cell Biology, School of Medicine, University of Oviedo, Oviedo, 33006, Spain

SO Journal of Bone and Mineral Research (2000), 15(1), 82-94  
CODEN: JBMREJ; ISSN: 0884-0431

PB American Society for Bone and Mineral Research

DT Journal

LA English

CC 13-3 (Mammalian Biochemistry)

AB Skeletal growth depends on endochondral ossification in growth plate **cartilage**, where proliferation of chondrocytes, matrix synthesis, and increases in chondrocyte size all contribute to the final length of a **bone**. To learn more about the potential role of matrix synthesis/degrdn. dynamics in the detn. of **bone** growth rate, we

- investigated the expression of matrix collagens and **collagenase 3** in tibial growth plates in three age groups of rats (21, 35, and 80 days after birth), each characterized by specific growth rates. By combining stereol. and in situ hybridization techniques, it was found that the expression of matrix collagens and **collagenase 3** was specifically turned on or off at specific stages of the chondrocyte-differentiation cycle, and these changes occurred as a temporal sequence that varied depending on animal growth rate. Furthermore, the expression of these matrix proteins by a growth plate chondrocyte was found to be sped up or slowed down depending on the growth rate. In addn. to expression of types II and X collagen, **collagenase-3** expression was found to constitute a const. event in the series of changes in gene expression that takes place during the chondrocyte-differentiation process. **Collagenase-3** expression was found to show a biphasic pattern: it was intermittently expressed at the proliferative phase and uniformly expressed at the hypertrophic stage. An intimate relationship between morphol. and kinetic changes assocd. with chondrocyte hypertrophy and changes in the expression pattern of matrix collagens and **collagenase 3** was obsd. The present data prove that the matrix synthesis/degrdn. dynamics of the growth plate **cartilage** varied depending on growth rate; these results support the hypothesis that changes in matrix degrdn. and synthesis are a crit. link in the sequence of tightly regulated events that lead to chondrocytic differentiation.
- ST **bone** growth chondrocyte differentiation proliferation collagen **collagenase 3** expression; **cartilage** extracellular matrix **bone** growth plate expression collagen **collagenase**
- IT Hypertrophy  
(chondrocyte; different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT Gene, animal  
**mRNA**  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(collagens and **collagenase 3**; different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT **Cartilage**  
Cell differentiation  
Cell proliferation  
**Chondrocyte**  
Extracellular matrix  
(different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT **Bone**  
(growth plate; different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT **Bone** formation  
(rate; different **bone** growth rates and stages of chondrocyte differentiation cycle are assocd. with changes in expression pattern of types II and X collagens and **collagenase 3** in proximal growth plates of rat tibia)
- IT Collagens, biological studies  
RL: BOC (**Biological occurrence**); BSU (Biological study,

unclassified); BIOL (Biological study); OCCU (Occurrence)  
 (type II; different **bone** growth rates and stages of  
 chondrocyte differentiation cycle are assocd. with changes in  
 expression pattern of types II and X collagens and **collagenase**  
 3 in proximal growth plates of rat tibia)

IT Collagens, biological studies  
 RL: BOC (Biological occurrence); BSU (Biological study,  
 unclassified); BIOL (Biological study); OCCU (Occurrence)  
 (type X; different **bone** growth rates and stages of  
 chondrocyte differentiation cycle are assocd. with changes in  
 expression pattern of types II and X collagens and **collagenase**  
 3 in proximal growth plates of rat tibia)

IT 175449-82-8, **Collagenase 3**  
 RL: BOC (Biological occurrence); BSU (Biological study,  
 unclassified); BIOL (Biological study); OCCU (Occurrence)  
 (different **bone** growth rates and stages of chondrocyte  
 differentiation cycle are assocd. with changes in expression pattern of  
 types II and X collagens and **collagenase 3** in  
 proximal growth plates of rat tibia)

RE.CNT 67 THERE ARE 67 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L98 ANSWER 16 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:54486 HCAPLUS

DN 132:292213

TI Expression of matrix **metalloproteinases** in normal and damaged articular **cartilage** from human knee and ankle **joints**

AU Chubinskaya, Susan; Kuettner, Klaus Eduard; Cole, Ada Asbury  
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SO Laboratory Investigation (1999), 79(12), 1669-1677  
CODEN: LAINAW; ISSN: 0023-6837

PB Lippincott Williams & Wilkins

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB The objectives of this study were the following: (a) describe the appearance of histopathol. changes obsd. in human articular **cartilage** from the knee and ankle **joints** of organ donors with no symptomatic **joint** disease; (b) compare by in situ hybridization **mRNA** expression of six matrix **metalloproteinases** (**MMP**) in these **cartilages**; (c) compare **MMP mRNA** expression with the histol. of the **cartilage**; and (d) test whether the effect of interleukin-1.beta. (IL-1.beta.) on the **MMP mRNA** expression could be detected with in situ hybridization. Human articular **cartilages** from the knee (tibiofemoral) and ankle (talocrural) **joints** of 41 different donors (aged 18 to 84 yr) were obtained through the Regional Organ Bank of Illinois. The microscopic appearance of the **cartilages** was graded on a histopathol. scale from 0 to 13 with the highest grade representing severely damaged **cartilage**. In situ hybridization was performed using oligonucleotide probes to three collagenases (**MMP-1**, **MMP-8**, **MMP-13**), gelatinase A (**MMP-2**), stromelysin (**MMP-3**), and matrix type-1 **metalloproteinase** (**MMP-14**). **Cartilages** from some donors were cultured with IL-1.beta. and then analyzed for **MMP** expression using in situ hybridization. The histopathol. grades of the **cartilages** from the asymptomatic donors covered

the entire scale even in the ankle. Based on their grades, the **cartilages** were described as either normal (grades 0 to 5) or damaged (grades 6 to 13). The **cartilages** contained message for all six **MMP** tested with no detectable differences in expression of **MMP-1**, **-2**, **-13**, and **-14** between the normal and damaged **cartilages**. However the expression of **MMP-3** and **MMP-8** was elevated in the damaged **cartilages**. In normal knee **cartilage**, **mRNA** expression of **MMP-3** and **MMP-8** was low, whereas in normal ankle **cartilage**, **MMP-8** expression was below the detection limit. **MMP-3** and **MMP-8** message was up-regulated in the damaged **cartilage** from both **joints**, or if the tissue was cultured in the presence of **IL-1.beta.**. From this study we conclude the following: (a) similar histopathol. changes occur in both knee and ankle **cartilages**; (b) **MMP-1**, **-2**, **-13**, and **-14** are constitutively expressed in adult human **cartilage**; and (c) only up-regulation of **mRNA** expression of **MMP-3** and **MMP-8** could be detected with naturally occurring **cartilage** damage and **IL-1.beta.** induction.

- ST matrix metalloproteinase knee ankle **cartilage** damage  
IL1beta
- IT Joint, anatomical  
(ankle; matrix metalloproteinases and **mRNAs** expression in normal and damaged articular **cartilage** from human knee and ankle **joints**)
- IT Cartilage  
(articular; matrix metalloproteinases and **mRNAs** expression in normal and damaged articular **cartilage** from human knee and ankle **joints**)
- IT Joint, anatomical  
(knee; matrix metalloproteinases and **mRNAs** expression in normal and damaged articular **cartilage** from human knee and ankle **joints**)
- IT Osteoarthritis  
(matrix metalloproteinases and **mRNAs** expression in normal and damaged articular **cartilage** from human knee and ankle **joints**)
- IT Interleukin 1.beta.  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(matrix metalloproteinases and **mRNAs** expression in normal and damaged articular **cartilage** from human knee and ankle **joints**)
- IT mRNA  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(matrix metalloproteinases and **mRNAs** expression in normal and damaged articular **cartilage** from human knee and ankle **joints**)
- IT Gene, animal  
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
(matrix metalloproteinases and **mRNAs** expression in normal and damaged articular **cartilage** from human knee and ankle **joints**)
- IT 9001-12-1, Matrix metalloproteinase-1  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(1 and 8; matrix metalloproteinases and **mRNAs** expression in normal and damaged articular **cartilage** from human knee and ankle **joints**)
- IT 79955-99-0, Matrix metalloproteinase-3 146480-35-5,  
Matrix metalloproteinase-2 161384-17-4

, Matrix metalloproteinase-14 175449-82-8,

Matrix metalloproteinase-13

RL: BOC (Biological occurrence); BSU (Biological study,  
unclassified); BIOL (Biological study); OCCU (Occurrence)

(matrix metalloproteinases and mRNAs expression in  
normal and damaged articular cartilage from human knee and  
ankle joints)

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L98 ANSWER 17 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1999:809143 HCAPLUS

DN 133:15645

TI Analysis of 16 different matrix metalloproteinases (MMP  
-1 to MMP-20) in the synovial membrane:

different profiles in trauma and rheumatoid arthritis

AU Konttinen, Yrjo; Ainola, Mia; Valleala, Heikki; Ma, Jian; Ida, Hideo;  
Mandelin, Jami; Kinne, Raimund W.; Santavirta, Seppo; Sorsa, Timo;

Lopez-Otin, Carlos; Takagi, Michiaki

CS Department of Oral Medicine, University of Helsinki, Finland, FIN-00014,  
Finland

SO Annals of the Rheumatic Diseases (1999), 58(11), 691-697

CODEN: ARDIAO; ISSN: 0003-4967

PB BMJ Publishing Group

DT Journal

LA English

CC 14-2 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 7, 15

AB Objective-To define the pattern of mRNA expression of all human

November Issue



matrix metallo-proteinases (MMPs) described to date in **rheumatoid arthritis** (RA) and traumatic **synovial membrane**, in order to differentiate between a physiol. tissue remodelling pattern and that assocd. with inflammatory tissue destruction. Methods-Anal. of SwissProt protein and EMBL/GenBank nucleotide sequence banks, protein sequence alignment, reverse transcriptase-polymerase chain reaction and nucleotide sequencing were used. Results-MMP-2 (gelatinase A), MMP-3 (stromelysin-1), MMP-11 (stromelysin-3) and MMP-19 were constitutively expressed. MMP-1 (fibroblast type collagenase), MMP-9 (gelatinase B) and MMP-14 (MT1-MMP) were expressed in all RA, but only in 55-80% of trauma samples. MMP-13 (collagenase-3) and MMP-15 (MT2-MMP) were expressed exclusively in RA (80-90% of the samples). MMP-20 (enamelysin) was absent and MMP-8 (collagenase-2) was rarely found in RA or trauma. All other MMPs (-7, -10, -12, -16, -17) had an intermediate pattern of expression. Conclusions-Some MMPs without interstitial collagenase activity seem to have a constitutive pattern of expression and probably participate in physiol. **synovial** tissue remodelling. Some MMPs are exclusively assocd. to RA **synovitis**, for example, MMP-13, which preferentially degrades type II collagen and aggrecan, and MMP-15, which activates proMMP-2 and proMMP-13 and is involved in tumor necrosis factor .alpha. processing. This clear cut **rheumatoid/inflammatory MMP** profile, more complex than has been previously appreciated, may facilitate inflammatory tissue destruction in RA.

- ST **MMP synovial membrane inflammation**  
**rheumatoid arthritis trauma**
- IT Injury  
(destruction; matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT Inflammation  
**Rheumatoid arthritis**  
(matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT mRNA  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT **Synovial membrane**  
(**synovitis**; matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT Injury  
(trauma; matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 140610-48-6, Stromelysin-2  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(MMP-10; matrix metalloproteinases in relation to tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 145267-01-2, Stromelysin-3  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(MMP-11; matrix metalloproteinases in relation to

- tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 9004-06-2, Macrophage metalloelastase  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(**MMP-12**; matrix **metalloproteinases** in relation to  
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 175449-82-8, Collagenase-3  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(**MMP-13**; matrix **metalloproteinases** in  
relation to tissue destruction and inflammation in human with  
**rheumatoid arthritis** and trauma)
- IT 161384-17-4, MT1-MMP  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(**MMP-14**; matrix **metalloproteinases** in relation to  
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 172308-17-7, MT2-MMP  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(**MMP-15**; matrix **metalloproteinases** in relation to  
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 203810-08-6, MT4-MMP  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(**MMP-17**; matrix **metalloproteinases** in relation to  
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 185766-51-2, Enamelysin  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(**MMP-20**; matrix **metalloproteinases** in relation to  
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 141256-52-2, Matrilysin  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(**MMP-7**; matrix **metalloproteinases** in relation to  
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 146480-36-6, Gelatinase B  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(**MMP-9**; matrix **metalloproteinases** in relation to  
tissue destruction and inflammation in human with **rheumatoid arthritis** and trauma)
- IT 9001-12-1, **MMP-1** 79955-99-0, **MMP-3**  
146480-35-5, **MMP 2** 188364-80-9, Matrix  
**metalloproteinase-19** 208349-51-3  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified);  
BIOL (Biological study); OCCU (Occurrence)  
(matrix **metalloproteinases** in relation to tissue destruction  
and inflammation in human with **rheumatoid arthritis**  
and trauma)

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L98 ANSWER 18 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1999:476256 HCAPLUS

DN 131:270444

TI Characterization of **collagenase 3 (matrix metalloproteinase 13)** messenger RNA expression in the **synovial membrane** and **synovial fibroblasts** of patients with **rheumatoid arthritis**

AU **Westhoff, Claudia Schulze; Freudiger, Dirk; Petrow, Peter; Seyfert, Christine; Zacher, Josef; Kriegsmann, Jorg; Pap, Thomas; Gay, Steffen; Stiehl, Peter; Gromnica-Ihle, Erika; Wernicke, Dirk**

} Diff.  
inv. entity

CS Max-Delbruck-Center for Molecular Medicine, Berlin, 13 092, Germany

SO Arthritis & Rheumatism (1999), 42(7), 1517-1527

CODEN: ARHEAW; ISSN: 0004-3591

PB Lippincott Williams & Wilkins

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 3

AB To study the localization and cell type-specific expression of **collagenase 3 mRNA (mRNA)** in the **synovial membrane**, its regulation in primary **synovial fibroblasts**, and the correlation with systemic **markers** of inflammation and radiog. damage in **rheumatoid arthritis (RA)**. The expression of **collagenase 3 mRNA** was characterized by Northern blot anal., reverse transcriptase-polymerase chain reaction, and in situ hybridization. Immunohistochem. detection of cell type-specific **antigens** was used in combination with in situ hybridization of **collagenase 3 mRNA** to characterize the cellular origin of **collagenase 3 mRNA** expression. **Collagenase 3 mRNA** was detected in **synovial membrane** specimens of 21 of 36 RA patients

(58%) and correlated with an increase in erythrocyte sedimentation rate ( $P < 0.05$ ) and C-reactive protein levels ( $P < 0.005$ ). **Collagenase 3 mRNA** was localized in fibroblast-like cells of the lining and sublining layers, and at the **synovial membrane-cartilage** interface. Four of 10 primary **synovial fibroblast** cell cultures showed basal expression of **collagenase 3 mRNA**, which was stimulated 2-4-fold upon interleukin-1.β. or tumor necrosis factor .α. treatment and, in contrast to interstitial **collagenase mRNA**, 5-10-fold by increasing the intracellular level of cAMP. The stimulation by cAMP analogs was completely abolished by protein kinase A inhibitors. Some RA patients show **collagenase 3 mRNA** expression in the **synovial membrane**, which correlates with elevated levels of systemic **markers** of inflammation in these patients. In **synovial fibroblasts**, the expression of **collagenase 3** and interstitial **collagenase mRNA** is differentially regulated by distinct protein kinase signal transduction pathways.

- ST **collagenase 3 mRNA synovium**  
 membrane fibroblast rheumatoid arthritis
- IT Proteins, specific or class  
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)  
 (C-reactive; collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Cartilage**  
 (articular; collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Rheumatoid arthritis**  
 Signal transduction, biological  
**Synovial membrane**  
 (collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **mRNA**  
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)  
 (collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Gene, animal**  
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)  
 (collagenase 3; collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Gene**  
 (expression; collagenase 3 mRNA expression in **synovial membrane** and **synovial fibroblasts** of human patients with **rheumatoid arthritis**)
- IT **Gene, animal**  
 RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)

- (interstitial collagenase; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT Erythrocyte  
(sedimentation rate; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT Fibroblast  
(synovial; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT 175449-82-8, Collagenase 3  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT 9001-12-1, Collagenase  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(interstitial; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)
- IT 9026-43-1, Protein kinase  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(signal transduction pathways; collagenase 3 mRNA expression in synovial membrane and synovial fibroblasts of human patients with rheumatoid arthritis)

RE.CNT 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L98 ANSWER 19 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1998:330087 HCAPLUS

DN 129:107553

TI **Collagenase 1 and collagenase 3 expression**  
in a guinea pig model of **osteoarthritis**

AU Huebner, Janet L.; Otterness, Ivan G.; Freund, Edward M.; Caterson, Bruce;  
Kraus, Virginia B.

CS Duke University Medical Center, Durham, NC, 27710, USA

SO Arthritis & Rheumatism (1998), 41(5), 877-890

CODEN: ARHEAW; ISSN: 0004-3591

PB Lippincott-Raven Publishers

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB The purpose of this study was to analyze the in vivo compartmental expression of **collagenases** 1 and 3 (**MMP-1** and **MMP-13**) in the Hartley guinea pig model of spontaneously occurring **osteoarthritis** (OA) for the purpose of elucidating their roles in the pathogenesis of OA. Competitive reverse transcription-polymerase chain reaction (RT-PCR) and immunohistochem. quantification of **mRNA** and protein levels in medial and lateral tibial **cartilage** obtained from the knee joints of 2-mo-old (no OA) and 12-mo-old (OA) guinea pigs. The patterns of **mRNA** expression of **collagenases** 1 and 3 varied with the age of the animal and the compartment of the knee. The authors also found focal areas of **collagenase 1** and **collagenase 3** proteins localized to the extracellular matrix of OA lesion sites, coincident with three-quarter/one-quarter collagen cleavage. **Collagenase 3** protein was also abundant throughout the medial tibial **cartilage** of 2-mo-old animals. This represents the first description of bona fide **collagenase 1** in a rodent species. Recent evidence, however, based on anal. of mitochondrial DNA homologies, suggests that the guinea pig is not a member of the order Rodentia and may be more closely allied with lagomorphs. This taxonomic

controversy leaves open to question the issue of the expression of **collagenase 1** in other rodents, such as mice and rats. The presence of active **collagenases 1** and **3** at OA lesion sites is consistent with an important role of these enzymes in the **cartilage** degrdn. of OA in guinea pigs. The expression of **collagenase 3** in medial tibial **cartilage** from 2-mo-old guinea pigs may signify a role of this enzyme in **cartilage** remodeling with growth and development, or it may represent an early mol. manifestation of OA.

ST **collagenase** gene expression **osteoarthritis**

IT Disease models

Guinea pig (*Cavia porcellus*)

**Osteoarthritis**

(**collagenase 1** and **collagenase 3** gene

expression in a guinea pig model of **osteoarthritis**)

IT **mRNA**

RL: **BOC** (**Biological occurrence**); **BPR** (**Biological process**); **BSU** (**Biological study, unclassified**); **BIOL** (**Biological study**); **OCCU** (**Occurrence**); **PROC** (**Process**)

(**collagenase 1** and **collagenase 3** gene

expression in a guinea pig model of **osteoarthritis**)

IT Gene

(expression; **collagenase 1** and **collagenase**

**3** gene expression in a guinea pig model of **osteoarthritis**)

IT **Joint, anatomical**

(knee; **collagenase 1** and **collagenase 3**

gene expression in a guinea pig model of **osteoarthritis**)

IT 9001-12-1, **Collagenase 175449-82-8**,

**Collagenase 3**

RL: **BOC** (**Biological occurrence**); **BPR** (**Biological process**); **BSU** (**Biological study, unclassified**); **BIOL** (**Biological study**); **OCCU** (**Occurrence**); **PROC** (**Process**)

(**collagenase 1** and **collagenase 3** gene

expression in a guinea pig model of **osteoarthritis**)

L98 ANSWER 20 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:768335 HCAPLUS

DN 128:33306

TI **Osteoarthritic** lesions: involvement of three different **collagenases**

AU Shlopov, Boris V.; Lie, Wen-Rong; Mainardi, Carlo L.; Cole, Ada A.; Chubinskaya, Susan; Hasty, Karen A.

CS University of Tennessee, Memphis, USA

SO Arthritis & Rheumatism (1997), 40(11), 2065-2074

CODEN: ARHEAW; ISSN: 0004-3591

PB Lippincott-Raven

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

AB The authors assessed the presence of fibroblast **collagenase** (**MMP-1**), neutrophil **collagenase** (**MMP-8**), and **collagenase 3** (**MMP-13**) in

**osteoarthritic** (OA) **cartilage**, with particular emphasis

on areas of macroscopic **cartilage** erosion. Levels of **mRNA** were assessed by reverse transcriptase-polymerase chain reaction (RT-PCR), in situ hybridization, and Northern blot anal.

**MMP-1** and **MMP-13** were expressed at higher

levels by OA chondrocytes than by normal chondrocytes. In addn.,

**mRNA** for **MMP-8** was present in OA **cartilage** but

not normal **cartilage** by PCR and Northern blot analyses.

Chondrocytes from areas surrounding the OA lesion expressed greater quantities of **MMP-1** and **MMP-13** compared with

normal chondrocytes, suggesting local modulation by mech. and inflammatory factors. Tumor necrosis factor .alpha. stimulated the expression of all 3 **collagenases**. Retinoic acid, an agent which induces autodigestion of **cartilage** in vitro, stimulated only the expression of **MMP-13**. These findings suggest a key role of **MMP-13** and **MMP-8**, as well as **MMP-1** in **osteoarthritis**.

- ST **osteoarthritis cartilage matrix metalloproteinase; collagenase cartilage osteoarthritis**
- IT **Cartilage**  
(articular; involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT **mRNA**  
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(for matrix **metalloproteinase** 1, 8 and 13; involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT **Chondrocyte Osteoarthritis**  
(involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT Interleukin 1.beta.  
Tumor necrosis factors  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT 9001-12-1, Matrix **metalloproteinase** 1  
RL: ADV (Adverse effect, including toxicity); BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(1 and 2; involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT 175449-82-8, Matrix **metalloproteinase** 13  
RL: ADV (Adverse effect, including toxicity); BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
(involvement of three different **collagenases** in human **osteoarthritic** lesions)
- IT 302-79-4, Retinoic acid  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(involvement of three different **collagenases** in human **osteoarthritic** lesions)
- L98 ANSWER 21 OF 28 HCAPLUS COPYRIGHT 2002 ACS
- AN 1997:360321 HCAPLUS
- DN 127:79120
- TI **Collagenase-3 (MMP-13)** is expressed during human fetal ossification and re-expressed in postnatal bone remodeling and in **rheumatoid arthritis**
- AU Stahle-Baeckdahl, Mona; Sandstedt, Bengt; Bruce, Kerstin; Lindahl, Anders; Jimenez, Maria G.; Vega, Jose A.; Lopez-Otin, Carlos
- CS Department of Dermatology, Karolinska Hospital, Stockholm, S-171 76, Swed.
- SO Laboratory Investigation (1997), 76(5), 717-728  
CODEN: LAINAW; ISSN: 0023-6837
- PB Williams & Wilkins
- DT Journal
- LA English
- CC 13-3 (Mammalian Biochemistry)



Section cross-reference(s): 14

- AB To explore possible physiol. functions for the **metalloproteinase collagenase-3**, we have examd. its temporal and spatial expression during human fetal development. Except for mesenchymal cells in the umbilical cord at 4 wk of gestation, signal for **collagenase-3 mRNA** was confined to mineralizing skeletal tissue and detected in hypertrophic chondrocytes and **osteoblastic** cells involved in ossification beginning at 10 wk and continuing through gestation. These cells were also immunoreactive with **collagenase-3** antiserum, indicating their ability to produce **collagenase-3** protein. In **osteoblastic** cells, the expression of **membrane-type 1 metalloproteinase** and 75-kd **gelatinase mRNA**, which have the capacity to activate **collagenase-3** in vitro, colocalized with that of **collagenase-3**. In postnatal tissues, **collagenase-3** was re-expressed in processes involving skeletal remodeling, such as **bone** cysts and ectopic **bone** and **cartilage** formation. Multinucleated **osteoclasts** were consistently neg. for **collagenase-3**. Furthermore, in patients with seropos. **rheumatoid arthritis**, expression of **collagenase-3** was prominent in articular **cartilage**, and **collagenase-3** protein was detected by immunoblotting in **synovial fluids**. Consistent with its substrate specificities, a plausible function for **collagenase-3** in these processes is to preferentially degrade type II collagen, thus serving a role during primary ossification, in skeletal remodeling, and in destructive joint disease.
- ST **metalloproteinase collagenase 3** ossification fetus; **collagenase 3** **rheumatoid arthritis** bone remodeling; **gelatinase**  
A MT1MMP **collagenase 3** **osteoblast**
- IT **Cartilage**  
(**articular**; **collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT **Chondrocyte**  
**Osteoblast**  
**Rheumatoid arthritis**  
(**collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT **Embryo, animal**  
(fetus; **collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT **Bone formation**  
(mineralization; **collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT 175449-82-8, **Collagenase 3**  
RL: BOC (**Biological occurrence**); BSU (**Biological study**, unclassified); BIOL (**Biological study**); OCCU (**Occurrence**)  
(**collagenase-3** is expressed during human fetal ossification and re-expressed in postnatal **bone** remodeling and in **rheumatoid arthritis**)
- IT 146480-35-5, 72,000-Mol.-wt. **gelatinase**  
161384-17-4, **Membrane-type 1-matrix metalloproteinase**  
RL: BOC (**Biological occurrence**); BSU (**Biological study**, unclassified); BIOL (**Biological study**); OCCU (**Occurrence**)  
(**collagenase-3** is expressed during human fetal

ossification and re-expressed in postnatal **bone** remodeling  
and in **rheumatoid arthritis** in relation to)

L98 ANSWER 22 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:225961 HCAPLUS

DN 126:236562

TI **Collagenase-3 (MMP-13)** is expressed by hypertrophic chondrocytes, periosteal cells, and **osteoblasts** during human fetal **bone** development  
AU Johansson, Nina; Saarialho-Kere, Ulpu; Airola, Kristiina; Herva, Riitta; Nissinen, Liisa; Westermarck, Jukka; Vuorio, Eero; Heino, Jyrki; Kahari, Veli-Matti

CS Department of Dermatology, Turku University Central Hospital, and University of Turku, Turku, FIN-20520, Finland

SO Developmental Dynamics (1997), 208(3), 387-397  
CODEN: DEDYEI; ISSN: 1058-8388

PB Wiley-Liss

DT Journal

LA English

CC 13-3 (Mammalian Biochemistry)

AB **Collagenase-3 (MMP-13)** is a novel matrix **metalloproteinase**, the expression of which has so far only been documented in human breast carcinomas and **osteoarthritic cartilage**. Here, the authors examd. the expression of **MMP-13** during human fetal development. Northern blot hybridizations revealed abundant expression of **MMP-13 mRNAs** in total **RNA** from fetal **cartilage** and calvaria at a gestational age of 15 wk. By in situ hybridization, **MMP-13** transcripts were detected in chondrocytes of hypertrophic **cartilage** in vertebrae of the spinal column and in the dorsal end of ribs undergoing ossification, as well as in **osteoblasts** and periosteal cells below the inner periosteal region of ossified ribs. In contrast, no expression of **MMP-13** could be detected in **osteoclasts**. Furthermore, expression of **MMP-13 mRNA** was detected in **osteoblasts** and fibroblasts primarily on the inner side of calvarial **bone** of the skull at 16 wk of gestation. Expression of **MMP-13 mRNA** by primary human fetal chondrocytes in culture was enhanced by transforming growth factor-.beta. (TGF-.beta.) and inhibited by **bone** morphogenetic protein-2 (BMP-2). No expression of **MMP-13 mRNA** could be noted in other fetal tissues, including the skin, lungs, neural tissue, muscle, and liver. These results suggest that **MMP-13** plays an important role in the extracellular matrix remodeling during fetal **bone** development both via endochondral and intramembranous ossification.

ST **collagenase 3** expression **bone** development  
fetus

IT **Bone**

**Chondrocyte**

**Osteoblast**

(**collagenase 3** is expressed by hypertrophic chondrocytes, periosteal cells, and **osteoblasts** during human fetal **bone** development)

IT Embryo, animal

(fetus; **collagenase 3** is expressed by hypertrophic chondrocytes, periosteal cells, and **osteoblasts** during human fetal **bone** development)

IT **mRNA**

RL: BOC (**Biological occurrence**); BSU (**Biological study**, unclassified); BIOL (**Biological study**); OCCU (**Occurrence**)

(for **collagenase 3**; **collagenase 3**

is expressed by hypertrophic chondrocytes, periosteal cells, and

- osteoblasts** during human fetal **bone** development)
- IT **Bone**  
(periosteum; **collagenase 3** is expressed by hypertrophic chondrocytes, periosteal cells, and **osteoblasts** during human fetal **bone** development)
- IT 175449-82-8, **Collagenase 3**  
RL: **BOC (Biological occurrence)**; BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)  
(**collagenase 3** is expressed by hypertrophic chondrocytes, periosteal cells, and **osteoblasts** during human fetal **bone** development)
- L98 ANSWER 23 OF 28 HCAPLUS COPYRIGHT 2002 ACS  
AN 1997:187408 HCAPLUS  
DN 126:259888  
TI Structural analysis and promoter characterization of the human **collagenase-3** gene (**MMP13**)  
AU Pendas, Alberto M.; Balbin, Milagros; Llano, Elena; Jimenez, Maria G.; Lopez-Otin, Carlos  
CS Fac. Medicina, Univ. Oviedo, Oviedo, 33006, Spain  
SO Genomics (1997), 40(2), 222-233  
CODEN: GNMCEP; ISSN: 0888-7543  
PB Academic  
DT Journal  
LA English  
CC 3-3 (Biochemical Genetics)  
Section cross-reference(s): 7, 13
- AB Human **collagenase-3 (MMP13)** is a recently identified member of the matrix **metalloproteinase (MMP)** family that is expressed in breast carcinomas and in articular **cartilage** from **arthritic** patients. In this work we have isolated and characterized genomic clones coding for human **collagenase-3**. This gene is composed of 10 exons and 9 introns and spans over 12.5 kb. The overall organization of the **collagenase-3** gene is similar to that of other **MMP** genes clustered at chromosome 11q22, including fibroblast **collagenase (MMP-1)**, matrilysin (**MMP-7**), and macrophage metalloelastase (**MMP-12**), but is more distantly related to genes coding for stromelysin-3 (**MMP-11**), **gelatinase-A (MMP-2)**, and **gelatinase-B (MMP-9)**, which map outside of this gene cluster. Nucleotide sequence anal. of about 1 kb of the 5'-flanking region of the **collagenase-3** gene revealed the presence of a TATA box, an AP-1 motif, a PEA-3 consensus sequence, an **osteoblast** specific element (OSE-2), and a TGF- $\beta$ . inhibitory element. Transient transfection expts. in HeLa and COS-1 cells with chloramphenicol acetyltransferase (CAT)-contg. constructs showed that the AP-1 site is functional and responsible for the obsd. inducibility of the reporter gene by the tumor promoter 12-O-tetradecanoylphorbol-13-acetate (TPA). However, and in contrast to other **MMP** genes, no significant synergistic effect on CAT activity between the AP-1 and PEA-3 elements found in the **collagenase-3** gene promoter was found. DNA binding anal. with nuclear exts. from HeLa cells revealed the formation of specific complexes between **collagenase-3** promoter sequences contg. the AP-1 site and nuclear proteins. The presence of this AP-1 functional site, which is able to confer responsiveness to a variety of tumor promoters and oncogene products, may contribute to explaining the high-level expression of **collagenase-3** in breast carcinomas and degenerative joint diseases.
- ST structural promoter characterization human **collagenase3** gene  
IT Genetic element  
RL: BAC (Biological activity or effector, except adverse); BOC

- (**Biological occurrence**); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)  
(AP-1 site; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Genetic element  
RL: BOC (**Biological occurrence**); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)  
(TATA box; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Genetic element  
RL: BOC (**Biological occurrence**); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)  
(TGF-.beta. inhibitory element; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Gene, microbial  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)  
(cat, AP-1 site is functional and responsible for the obsd. inducibility of the reporter gene by TPA; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT cDNA sequences  
(for human **collagenase-3** (**MMP13**))
- IT Proteins, specific or class  
RL: PRP (Properties)  
(nuclear, specific complexes between **collagenase-3** promoter sequences contg. the AP-1 site and nuclear proteins; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Protein sequences  
(of human **collagenase-3**)
- IT Genetic element  
RL: BOC (**Biological occurrence**); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (**Occurrence**)  
(**osteoblast** specific element-2; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT Promoter (genetic element)  
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)  
(structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT 156656-98-3  
RL: PRP (Properties)  
(amino acid sequence; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT 141907-41-7, Matrix **metalloproteinase**  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(matrix **metalloproteinase** family; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT 157114-69-7, GenBank X75308  
RL: PRP (Properties)  
(nucleotide sequence; structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))
- IT 175449-82-8, **Collagenase-3**  
RL: PRP (Properties)  
(structural anal. and promoter characterization of the human **collagenase-3** gene (**MMP13**))

AN 1996:641394 HCAPLUS  
 DN 125:269249  
 TI Matrix metalloprotease assay and use in clinical diagnosis  
 IN Fujimoto, Noboru; Yamashiro, Takayuki; Hosokawa, Nobuko; Tokai, Hideaki; Shinagawa, Akira; Yoshida, Shinichi; Iwata, Kazushi  
 PA Fuji Yakuhin Kogyo Kk, Japan  
 SO Jpn. Kokai Tokkyo Koho, 22 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G01N033-53  
 ICS C12N015-02; C12P021-08; G01N033-573; G01N033-577  
 ICI C12P021-08, C12R001-91  
 CC 7-1 (Enzymes)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08226918	A2	19960903	JP 1995-53794	19950220
	JP 2864219	B2	19990303		

AB A method for the detn. of free activated matrix metalloproteases (MMP) by employing a combination of monoclonal antibodies to MMP and inhibitors, and use of the method for the diagnosis. Assay of MMP-1-3 and -7-13 using monoclonal antibodies and tissue inhibitor of metalloprotease-1 (TIMP-1) and -2 (TIMP-2) are described. Prepn. of bovine TIMP-1, human TIMP-1, and monoclonal antibodies to MMP-1, -2, and -7, as well as the methods of detn. of activated human MMP-1, -2, and -9 were demonstrated. The methods are useful in the diagnosis of chronic rheumatism and deformed arthritis.

ST matrix metalloprotease detn monoclonal antibody; diagnosis rheumatism arthritis matrix metalloprotease assay

IT Arthritis  
 Rheumatism  
 (diagnosis of; matrix metalloprotease assay and use in clin. diagnosis)

IT 37205-61-1, Proteinase inhibitor  
 RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (TIMP-1 and TIMP-2; matrix metalloprotease assay and use in clin. diagnosis)

IT 9001-12-1, Matrix metalloproteinase 1 9004-06-2, Matrix metalloproteinase-12 79955-99-0, Matrix metalloproteinase 3 140610-48-6, Matrix metalloproteinase 10 141256-52-2, Matrix metalloproteinase 7 145267-01-2, Matrix metalloproteinase 11 146480-35-5, Matrix metalloproteinase 2 146480-36-6, Matrix metalloproteinase 9 175449-82-8, Matrix metalloproteinase 13  
 RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)  
 (matrix metalloprotease assay and use in clin. diagnosis)

L98 ANSWER 25 OF 28 HCAPLUS COPYRIGHT 2002 ACS  
 AN 1996:473281 HCAPLUS  
 DN 125:105113  
 TI Treatment of rheumatic diseases with agents which affect collagenase 3  
 IN Wernicke, Dirk  
 PA Max-Delbrueck-Centrum fuer Molekulare Medizin, Germany  
 SO Ger. Offen., 3 pp.  
 CODEN: GWXXBX

DT Patent  
 LA German  
 IC ICM A61K038-55  
 ICS A61K038-19  
 CC 1-7 (Pharmacology)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19501032	A1	19960718	DE 1995-19501032	19950114
AB	<p><b>Rheumatic diseases characterized by joint degeneration, e.g. chronic polyarthritis and osteoarthritis, can be treated with agents which interfere with the activity of collagenase 3, a matrix metalloproteinase (MMP) assocd. with these diseases. These agents may act by suppressing transcription of the collagenase 3 gene or activation of the collagenase 3 proenzyme, directly inhibiting collagenase 3, or inducing the formation of natural MMP inhibitors with such agents as retinoids or interleukin 6 or 11 (no data). Suitable suppressors of transcription include (1) antisense oligonucleotides to regulatory sequences in the flanking regions of the gene and the splicing sequences, (2) antagonists of MMP-inducing cytokines (e.g. TNF-.alpha.), (3) enhancers of MMP-inhibiting cytokines (e.g. .beta.-transforming growth factor), and hormones (e.g. glucocorticoids, retinoids). Proenzyme activation may be prevented by limited proteolysis, oxidn. of the cysteine residue in the active site of collagenase 3, or alteration of the protein structure with SDS or chaotropic reagents. Among the direct inhibitors of collagenase 3 are .alpha.2-macroglobulin, antibiotics (e.g. tetracyclines), and synthetic peptides.</b></p>				
ST	<b>antiarthritic collagenase 3 inhibitor;</b>				
IT	<p><b>rheumatism transcription inhibitor collagenase 3</b>          Enzyme functional sites          (of collagenase 3, cysteine oxidn. in; treatment of  <b>rheumatic diseases with agents which affect collagenase 3</b>)</p>				
IT	<p>Peptides, biological studies          RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)          (synthetic; treatment of <b>rheumatic diseases with agents which affect collagenase 3</b>)</p>				
IT	<p><b>Rheumatism</b>          Transcription, genetic          (treatment of <b>rheumatic diseases with agents which affect collagenase 3</b>)</p>				
IT	<p>Antibiotics          Hormones          Lymphokines and Cytokines          Retinoids          RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)          (treatment of <b>rheumatic diseases with agents which affect collagenase 3</b>)</p>				
IT	<p>Inflammation inhibitors          (<b>antiarthritics</b>, treatment of <b>rheumatic diseases with agents which affect collagenase 3</b>)</p>				
IT	<p>Denaturants          (chaotropic, treatment of <b>rheumatic diseases with agents which affect collagenase 3</b>)</p>				
IT	<p>Corticosteroids, biological studies          RL: BAC (Biological activity or effector, except adverse); BSU (Biological</p>				

- study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (gluco-, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (interleukin 1, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (interleukin 11, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (interleukin 6, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (leukemia-inhibiting factor, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Nucleotides, biological studies  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (oligo-, deoxyribo-, antisense; treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Lymphokines and Cytokines  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (tumor necrosis factor-.alpha., treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Macroglobulins  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (.alpha.2-, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT Animal growth regulators  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (.beta.-transforming growth factors, treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT 52-90-4, Cysteine, biological studies  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
 (of **collagenase 3** active site, oxidn. of; treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT 175449-82-8, Collagenase 3  
 RL: ADV (Adverse effect, including toxicity); BIOL (Biological study)  
 (treatment of **rheumatic** diseases with agents which affect **collagenase 3**)
- IT 60-54-8D, Tetracycline, derivs. 151-21-3, SDS, biological studies

302-79-4, all-trans-Retinoic acid 1402-38-6, Oncostatin 9001-92-7,  
Proteinase 37259-58-8, Serine proteinase 141907-41-7, Matrix

**metalloproteinase**

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(treatment of **rheumatic** diseases with agents which affect  
**collagenase 3**)

IT **176742-44-2, Procollagenase 3**

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(treatment of **rheumatic** diseases with agents which affect  
**collagenase 3**)

L98 ANSWER 26 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN **1996:278516** HCAPLUS

DN **124:340026**

TI The new **collagenase, collagenase-3**, is expressed and synthesized by human chondrocytes but not by **synoviocytes**. A role in **osteoarthritis**

AU Reboul, Pascal; Pelletier, Jean-Pierre; Tardif, Ginette; Cloutier, Jean-Marie; Martel-Pelletier, Johanne

CS Notre-Dame Hospital, Univ. of Montreal, Montreal, QC, H2L 4K8, Can.

SO Journal of Clinical Investigation (1996), 97(9), 2011-2019

CODEN: JCINAO; ISSN: 0021-9738

PB Rockefeller University Press

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 7, 15

AB Recently, a new human **collagenase, collagenase-3** has been identified. Since collagen changes are of particular importance in **cartilage** degeneration, the authors investigated if **collagenase-3** plays a role in **osteoarthritis** (OA). Reverse transcriptase-PCR anal. revealed that in articular tissues **collagenase-3** was expressed by the chondrocytes but not by the **synoviocytes**. Northern blot anal. of the chondrocyte mRNA revealed the presence of two major gene transcripts of 3.0 and 2.5 kb, and a third one of 2.2 kb was occasionally present. Compared to normal, OA showed a significantly higher (3.0 kb; 2.5 kb) level of **collagenase-3** mRNA expression. **Collagenase-3** had a higher catalytic velocity rate (about fivefold) than **collagenase-1** on type II collagen. With the use of two specific antibodies, the authors showed that human chondrocytes had the ability to produce **collagenase-3** as a proenzyme and as a glycosylated doublet. The chondrocyte **collagenase-3** protein is produced in a significantly higher level in OA (.apprx.9.5-fold) than in normal. The synthesis and expression of this new **collagenase** could also be modulated by two proinflammatory cytokines, IL-1.beta. and TNF-.alpha., in a time- and dose-dependent manner. This study provides novel and interesting data on **collagenase-3** expression and synthesis in human **cartilage** cells and suggest its involvement in human OA **cartilage** pathophysiol.

ST **collagenase 3** chondrocyte **synoviocyte**  
**osteoarthritis**

IT Gene, animal

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(**collagenase-3**, is expressed and synthesized by human **osteoarthritis** chondrocytes but not by **synoviocytes**)

IT Ribonucleic acids, messenger



RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)

(for collagenase-3 of chondrocytes of humans with osteoarthritis)

- IT **Chondrocyte**  
(articular, collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)
- IT Lymphokines and Cytokines  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(interleukin 1.beta., stimulation of human osteoarthritis chondrocyte expression of collagenase-3 by)
- IT **Arthritis**  
(osteoarthritis, collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)
- IT **Synovial membrane**  
(synoviocyte, collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)
- IT Lymphokines and Cytokines  
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)  
(tumor necrosis factor-.alpha., stimulation of human osteoarthritis chondrocyte expression of collagenase-3 by)
- IT **175449-82-8, Collagenase-3**  
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); OCCU (Occurrence)  
(collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)
- IT **176742-44-2, Procollagenase 3**  
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)  
(collagenase-3, is expressed and synthesized by human osteoarthritis chondrocytes but not by synoviocytes)

L98 ANSWER 27 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1996:275807 HCAPLUS

DN 124:314276

TI Cloning of collagenase 3 from the synovial membrane and its expression in rheumatoid arthritis and osteoarthritis

AU Wernicke, Dirk; Seyfert, Christine; Hinzmann, Bernd; Gromnica-Ihle, Erika

CS Clinic Orthopedy/Rheumatology, Max Delbrück Center Molecular Medicine, Berlin, Germany

SO Journal of Rheumatology (1996), 23(4), 590-595

CODEN: JRHUA9; ISSN: 0315-162X

PB Journal of Rheumatology Publishing Co. Ltd.

DT Journal

LA English

CC 14-11 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 3, 7

AB The objective was to analyze synovial membranes of patients with rheumatoid arthritis (RA) for the

expression of unknown matrix **metalloproteinases (MMP)**. Degenerate oligonucleotides corresponding to highly conserved regions of the **MMP** gene family and the rapid amplification of cDNA ends (RACE) method have been used to search for new members of this gene family. **MMP** gene expression has been characterized by Northern blot anal. The authors cloned a **MMP** cDNA from the **synovial membrane** that is completely identical to the recently published **collagenase 3** cDNA derived from a human breast cancer cDNA library (Freije, J., et al., 1994). **Collagenase 3** is expressed in parallel with interstitial **collagenase** and stromelysin 1 in RA and **osteoarthritis** (OA). **Collagenase 3** gene expression was not detected in several normal human tissues. The expression of **collagenase 3** in the **synovial membrane** in RA and OA suggests its involvement in articular tissue degrdn.

ST **collagenase 3 synovium rheumatoid arthritis osteoarthritis**

IT Gene, animal

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(expression; human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

IT **Synovial membrane**

Transcription, genetic

(human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

IT **Arthritis**

(**osteoarthritis**, human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

IT **Arthritis**

(**rheumatoid**, human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

IT 9001-12-1, **Collagenase 3** 79955-99-0, Stromelysin-1 175449-82-8, **Collagenase 3**

RL: BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative)

(human **collagenase 3** from **synovial membrane** expression in **rheumatoid arthritis** and **osteoarthritis** together with interstitial **collagenase** and stromelysin 1)

L98 ANSWER 28 OF 28 HCAPLUS COPYRIGHT 2002 ACS

AN 1996:187785 HCAPLUS

DN 124:283007

TI Cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic cartilage**

AU Mitchell, Peter G.; Magna, Holly A.; Reeves, Lisa M.; Lopresti-Morrow, Lori L.; Yocum, Sue A.; Rosner, Philip J.; Geoghegan, Kieran F.; Hambor, John E.

CS Central Research Division, Pfizer Inc., Groton, CT, 06340, USA

SO Journal of Clinical Investigation (1996), 97(3), 761-8

CODEN: JCINAO; ISSN: 0021-9738

PB Rockefeller University Press

DT Journal

- LA English  
 CC 7-5 (Enzymes)  
 Section cross-reference(s): 1, 3, 13
- AB Proteolysis of triple-helical collagen is an important step in the progression toward irreversible tissue damage in **osteoarthritis**. Earlier work on the expression of enzymes in **cartilage** suggested that **c collagenase-1 (MMP-1)** contributes to the process. Degenerate reverse transcription polymerase chain reaction expts., Northern blot anal., and direct immunodetection have now provided evidence that **collagenase-3 (MMP-13)**, an enzyme recently cloned from human breast carcinoma, is expressed by chondrocytes in human **osteoarthritic cartilage**. Variable levels of **MMP-13 mRNA** were present in total RNA prepd. from six **osteoarthritic cartilage** samples. Expression of both **MMP-13** and **MMP-1** in **cartilage** was significantly induced at both the message and protein levels by interleukin-1.alpha.. Recombinant **MMP-13** cleaved type II collagen to give characteristic 3/4 and 1/4 fragments; however, **MMP-13** turned over type II collagen at least 10 times faster than **MMP 1**. Expts. with intact type II collagen as well as a synthetic peptide suggested that **MMP-13** cleaved type II collagen at the same bond as **MMP-1**, but this was then followed by a secondary cleavage that removed three amino acids from the 1/4 fragment amino terminus. The expression of **MMP-13** in **osteoarthritic cartilage** and its activity against type II collagen suggest that the enzyme plays a significant role in **cartilage** collagen degrdn., and must consequently form part of a complex target for proposed therapeutic interventions based on **collagenase** inhibition.
- ST **matrix metalloproteinase 13 collagen osteoarthritic cartilage; collagenase 3 collagen II osteoarthritic cartilage**
- IT Protein sequences  
 (cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic cartilage**)
- IT Ribonucleic acids, messenger  
 RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)  
 (cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic cartilage**)
- IT Cartilage  
 (osteoarthritic; cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase -13** from human **osteoarthritic cartilage**)
- IT Arthritis  
 (osteoarthritis, cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase -13** from human **osteoarthritic cartilage**)
- IT Collagens, biological studies  
 RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)  
 (type II, cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic cartilage**)
- IT 175449-82-8, Matrix metalloproteinase-13  
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human

## osteoarthritic cartilage)

=> fil medline

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=> d all tot

L120 ANSWER 1 OF 7 MEDLINE  
AN 2001252188 MEDLINE  
DN 21248324 PubMed ID: 11350843  
TI Analysis of the cell infiltrate and expression of matrix metalloproteinases and granzyme B in paired synovial biopsy specimens from the cartilage-pannus junction in patients with RA.  
AU Smeets T J; Kraan M C; Galjaard S; Youssef P P; Smith M D; Tak P P  
CS Division of Clinical Immunology and Rheumatology, Academic Medical Centre, Amsterdam, The Netherlands.. T.J.Smeets@amc.uva.nl  
SO ANNALS OF THE RHEUMATIC DISEASES, (2001 Jun) 60 (6) 561-5.  
CY England: United Kingdom  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 200106  
ED Entered STN: 20010611  
Last Updated on STN: 20010611  
Entered Medline: 20010607  
AB OBJECTIVES: Examination of synovial tissue (ST) obtained at surgery because of end stage destructive rheumatoid arthritis (RA) showed that macrophages and fibroblasts are the major cell types at the cartilage-pannus junction (CPJ). This study aimed at defining the cell infiltrate and mediators of joint destruction in ST selected at arthroscopy from the CPJ in patients with RA who did not require joint surgery. METHODS: Paired synovial biopsy specimens were obtained at arthroscopy from ST adjacent to the CPJ and the suprapatellar pouch from the knee joints of 17 patients with RA. Immunohistological analysis was performed using monoclonal antibodies to detect T cells, B cells, plasma cells, macrophages, fibroblast-like synoviocytes, mast cells, and granzyme B+ cytotoxic cells as well as the expression of metalloproteinase (MMP)-1,

MMP-3, and MMP-13. The sections were evaluated by computer assisted image analysis and semiquantitative analysis. RESULTS: The cell infiltrate comprised mainly T cells, macrophages, and plasma cells. The ST was also infiltrated by the other cell types, but at lower numbers. Expression of MMPs was abundant, especially MMP-3. The features of ST at the CPJ were generally similar to those at the suprapatellar pouch. CONCLUSIONS: The synovium at the CPJ in patients with RA who did not require joint surgery exhibits, in general, the same type of cell infiltrate and expression of MMPs and granzymes as ST from the suprapatellar pouch. The pathological changes that have been described at the CPJ in patients with RA with end stage, destructive disease may well reflect the transition to a process in which macrophages, fibroblast-like synoviocytes, and other cell types become increasingly important.

CT Check Tags: Female; Human; Male

Adult

Aged

Aged, 80 and over

\*Arthritis, Rheumatoid: EN, enzymology

Arthritis, Rheumatoid: IM, immunology

Biopsy

\*Cartilage, Articular: EN, enzymology

Cartilage, Articular: IM, immunology

Immunoenzyme Techniques

Macrophages: IM, immunology

\*Matrix Metalloproteinases: ME, metabolism

Middle Age

Plasma Cells: IM, immunology

\*Serine Endopeptidases: ME, metabolism

\*Synovial Membrane: EN, enzymology

Synovial Membrane: IM, immunology

T-Lymphocyte Subsets: IM, immunology

CN EC 3.4.21 (Serine Endopeptidases); EC 3.4.21.79 (granzyme B); EC 3.4.24.- (Matrix Metalloproteinases)

L120 ANSWER 2 OF 7 MEDLINE

AN 2001063754 MEDLINE

DN 20496800 PubMed ID: 11040455

TI Induction of collagenase-3 (MMP-13

) in rheumatoid arthritis synovial fibroblasts.

AU Moore B A; Aznavoorian S; Engler J A; Windsor L J

CS Research Center in Oral Biology, University of Alabama at Birmingham, AL 35294, USA.

NC 1P50DE/CA11910-01 (NIDCR)

P50DE08228 (NIDCR)

R01DE10631 (NIDCR)

+

SO BIOCHIMICA ET BIOPHYSICA ACTA, (2000 Oct 18) 1502 (2) 307-18.

Journal code: 0217513. ISSN: 0006-3002.

CY Netherlands

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200012

ED Entered STN: 20010322

Last Updated on STN: 20010322

Entered Medline: 20001222

AB There is a growing body of evidence that implicates matrix metalloproteinases (MMPs) as major players in numerous diseased conditions. The articular cartilage degradation that is characteristic of rheumatoid arthritis (RA) is believed to be mediated by the collagenase subfamily of matrix metalloproteinases. The preference of collagenase-3 (CL-3) for collagen type II makes it a likely candidate in the turnover of articular cartilage and a potential

target for drug development. In this study, RA synovial membrane tissue was shown to express CL-3 mRNA by reverse transcriptase-polymerase chain reaction (RT-PCR) and protein by immunohistochemistry. Fibroblasts isolated and cultured from RA synovial membrane tissue were induced to express CL-3 mRNA. CL-3 mRNA was detected after PMA treatment in 16 of the 18 RA synovial membrane fibroblast cell lines established for this study. These fibroblasts also expressed mRNA for collagenase-1 (CL-1, MMP-1), membrane type-1 matrix metalloproteinase, gelatinase A, gelatinase B, stromelysin-1, stromelysin-2, TIMP-1, and TIMP-2. They were further shown to express CL-1 mRNA constitutively and CL-3 mRNA only after stimulation with PMA, IL-1, TGF-beta1, TNF-alpha, or IL-6 with IL-6sR. These fibroblasts also expressed after induction both CL-1 and CL-3 at the protein level as determined by Western blot analyses and immunofluorescence.

CT Check Tags: Human; In Vitro; Support, U.S. Gov't, P.H.S.  
Antibodies

\*Arthritis, Rheumatoid: EN, enzymology

Arthritis, Rheumatoid: GE, genetics

Base Sequence

Blotting, Western

\*Collagenases: BI, biosynthesis

Collagenases: GE, genetics

Collagenases: IM, immunology

Cytokines: PD, pharmacology

DNA Primers: GE, genetics

Enzyme Induction

Fibroblasts: ME, metabolism

Immunohistochemistry

Interstitial Collagenase: BI, biosynthesis

Interstitial Collagenase: GE, genetics

Microscopy, Fluorescence

RNA, Messenger: GE, genetics

RNA, Messenger: ME, metabolism

Reverse Transcriptase Polymerase Chain Reaction

\*Synovial Membrane: EN, enzymology

Tetradecanoylphorbol Acetate: PD, pharmacology

Tissue Inhibitor of Metalloproteinases: GE, genetics

RN 16561-29-8 (Tetradecanoylphorbol Acetate)

CN 0 (Antibodies); 0 (Cytokines); 0 (DNA Primers); 0 (RNA, Messenger); 0 (Tissue Inhibitor of Metalloproteinases); EC 3.4.24.- (Collagenases); EC 3.4.24.- (collagenase 3); EC 3.4.24.7 (Interstitial Collagenase)

L120 ANSWER 3 OF 7 MEDLINE

AN 2000001910 MEDLINE

DN 20001910 PubMed ID: 10531072

TI Expression of laminins and their integrin receptors in different conditions of synovial membrane and synovial membrane-like interface tissue.

AU Konttinen Y T; Li T F; Xu J W; Tagaki M; Pirila L; Silvennoinen T; Santavirta S; Virtanen I

CS Department of Medicine, Helsinki University Central Hospital, Helsinki, Finland.

SO ANNALS OF THE RHEUMATIC DISEASES, (1999 Nov) 58 (11) 683-90.  
Journal code: 0372355. ISSN: 0003-4967.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199912

ED Entered STN: 20000113

Last Updated on STN: 20000113

Entered Medline: 19991207

AB OBJECTIVE: To demonstrate the expression of laminins (Lns) and their integrin (Int) receptors in different synovial samples and synovial membrane-like interface tissues from well fixed and aseptically loosened total hip replacement (THR), and the potential role of Ln-Int interaction in the production of collagenases and cytokines. METHODS: Immunohistochemical staining was done to detect the distribution of EHS Ln, Ln alpha2, alpha3, alpha5, beta1, beta2 chains and Int alpha1, alpha2, alpha3, alpha6, beta1, beta4 subunits in different samples. Double immunofluorescence labelling was used to find colocalisation of Int alpha6 subunit and collagenase-1/collagenase-3/TNFalpha/IL6. RESULTS: General Ln immunoreactivity was detected in all specimens. Ln alpha5, beta1 and beta2, but not alpha2 and alpha3 chains were seen in the synovial lining and the basement membrane of blood vessels with the intensity/extent of labelling in the following rank order: rheumatoid arthritis (RA) loosened prostheses, osteoarthritis, well fixed prostheses, traumatic knees. Among Int subunits, staining for beta1 was usually the strongest, followed by staining for Int alpha6, alpha1, alpha3, and alpha2 subunits, with the same rank order for overall expression of Lns. Int beta4 subunit was not detectable in most of the specimens. Double labelling focused on Int alpha6 subunit disclosed its frequent colocalisation with collagenases 1 and 3 and with tumour necrosis factor alpha and interleukin 6 in synovial lining. CONCLUSION: Synovial lining contains Ln-10, Ln-11, and Int alpha6beta1 and alpha1beta1 receptors. In aseptic loosening of THR, interface tissue has a similar Ln subtype and Int receptor composition as RA synovium, which confirms its "lining-like" phenotype. Synovial lining does not contain Ln-5 (alpha3beta3gamma2) or Int alpha6beta4, which are components of epithelial hemidesmosomes. The expression of Lns and their Int receptors is upregulated in inflammation. The close spatial relation between Ln and its Int receptors in synovial lining cells containing proteinases and cytokines suggests a potential role in joint destruction and prosthetic loosening.

CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't

Adult

Aged

Aged, 80 and over

\*Arthritis, Rheumatoid: ME, metabolism

Fluorescent Antibody Technique

\*Hip Prosthesis

Immunoenzyme Techniques

\*Integrins: ME, metabolism

\*Laminin: ME, metabolism

Middle Age

Osteoarthritis, Hip: ME, metabolism

Prosthesis Failure

\*Synovial Membrane: ME, metabolism

CN 0 (Integrins); 0 (Laminin)

L120 ANSWER 4 OF 7 MEDLINE

AN 1999444775 MEDLINE

DN 99444775 PubMed ID: 10517187

TI Collagenase-3 (MMP-13) and its activators in rheumatoid arthritis: localization in the pannus-hard tissue junction and inhibition by alendronate.

AU Konttinen Y T; Salo T; Hanemaaijer R; Valleala H; Sorsa T; Sutinen M; Ceponis A; Xu J W; Santavirta S; Teronen O; Lopez-Otin C

CS Department of Medicine, Helsinki University Central Hospital, Finland.. yrjo.konttinen@helsinki.fi

SO MATRIX BIOLOGY, (1999 Aug) 18 (4) 401-12.

Journal code: 9432592. ISSN: 0945-053X.

CY GERMANY: Germany, Federal Republic of

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199911  
ED Entered STN: 20000111  
Last Updated on STN: 20000111  
Entered Medline: 19991103  
AB The hypothesis of the present work was that the pannus tissue overlying the articular hard tissues has an aggressive phenotype and contains the newly discovered **collagenase-3** and its endogenous inducers and activators. We therefore analyzed the eventual presence of **collagenase-3** and its regulation at the pannus-cartilage junction. **Collagenase-3** mRNA (in situ hybridization) and enzyme protein (ABC and immunofluorescence staining) were found in the pannocytes in the pannus-hard tissue junction. Inflammatory round cells associated with the critical interface contained TNF-alpha and IL-1beta. These cytokines induced **collagenase-3** secretion in cultured rheumatoid synovial fibroblasts. Procollagenase-3 activators, stromelysin-1, 72 kDa type IV collagenase/gelatinase and membrane-type 1-MMP, were also found in the pannus-hard tissue junction. Active **collagenase-3** was inhibited with alendronate (IC50 = 500-750 microM). **Collagenase-3**, due to its substrate profile and local synthesis in a milieu favoring its activation, might play a major role in the degradation of cartilage type II and bone type I collagens. Alendronate, at concentrations attainable in vivo, is able to inhibit **collagenase-3**. This might offer an option to control **collagenase-3**-mediated tissue destruction in rheumatoid arthritis.  
CT Check Tags: Female; Human; Male  
Adult  
Aged  
\*Alendronate: PD, pharmacology  
\*Arthritis, Rheumatoid: EN, enzymology  
Arthritis, Rheumatoid: PA, pathology  
Blotting, Western  
\*Cartilage, Articular: EN, enzymology  
Cartilage, Articular: PA, pathology  
Collagenases: AI, antagonists & inhibitors  
\*Collagenases: ME, metabolism  
\*Enzyme Inhibitors: PD, pharmacology  
\*Exudates and Transudates: EN, enzymology  
Immunohistochemistry  
Interleukin-1: ME, metabolism  
Matrix Metalloproteinases: AI, antagonists & inhibitors  
\*Matrix Metalloproteinases: ME, metabolism  
Middle Age  
\*Synovial Membrane: EN, enzymology  
Synovial Membrane: PA, pathology  
Tumor Necrosis Factor: ME, metabolism  
RN 66376-36-1 (Alendronate)  
CN 0 (Enzyme Inhibitors); 0 (Interleukin-1); 0 (Tumor Necrosis Factor); EC 3.4.24.- (Collagenases); EC 3.4.24.- (Matrix Metalloproteinases); EC 3.4.24.- (**collagenase 3**)  
L120 ANSWER 5 OF 7 MEDLINE  
AN 1999326633 MEDLINE  
DN 99326633 PubMed ID: 10397973  
TI Matrix metalloproteinases and tissue inhibitors of metalloproteinases in joint fluid of the patients with loose artificial hip joints.  
AU Takei I; Takagi M; Santavirta S; Ida H; Hamasaki M; Ishii M; Fukushima S; Ogino T; Konttinen Y T  
CS Department of Orthopaedic Surgery, Yamagata University School of Medicine, 2-2-2 Iida-Nishi, Yamagata, 990-9585, Japan.. itakei@med.id.yamagata-u.ac.jp  
SO JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, (1999 Jun 5) 45 (3) 175-83.  
Journal code: 0112726. ISSN: 0021-9304.



CY United States  
DT (CLINICAL TRIAL)  
Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 200005  
ED Entered STN: 20000525  
Last Updated on STN: 20000525  
Entered Medline: 20000518

AB The pseudojoint cavity formed in patients undergoing total hip arthroplasty (THA) is later remodeled to synovial membrane-like tissue, which produces pseudosynovial fluid. This pseudosynovium also is an important source of matrix metalloproteinases (MMPs). As it is widely speculated that synovial fluid MMPs may contribute to local tissue degradation in rheumatoid arthritis (RA) and osteoarthritis (OA), we hypothesize that locally produced MMPs are found in the pseudosynovial fluid, via which they have access to the implant-host interface, and that if they retain their proteolytic potential, they might contribute to aseptic loosening. Enzyme-linked immunosorbent assay (ELISA), immunoblotting, and zymography were used to analyze MMPs and tissue inhibitors of metalloproteinases (TIMPs) in synovial fluid in aseptic loosening, which was compared to RA and OA. Pseudosynovial THA fluid was characterized using low levels of MMP-1 but moderate levels of MMP-13 and MT1-MMP (MMP-14). Due to the lack of an appropriate assay, MMP-13 and MT1-MMP were not similarly assessed, but the immunoblotting indicated that they were in the 56 kD intermediate proteolytically processed forms. The MMP-9 level was intermediate between RA and OA. MMP-2 was on a significant level, but there were no differences among study groups. The THA group also was characterized using relatively high levels of TIMP-1 and TIMP-2. Accordingly, MMP-9 and MMP-2 were found to occur in the 92 kD and 72 kD proenzyme form, respectively, with full activity retained in all study groups. The data suggest that proMMP-2-TIMP-2 and proMMP-9-TIMP-1 complexes are formed in the pseudosynovial fluid due to the excess of TIMPs over MMPs in aseptic loosening of THA. TIMP-complexed MMPs are resistant to MMP-mediated proteolytic activation, which may explain their latency and proenzyme zymogen form. Thus, formation of stabilizing proMMP-TIMP complexes enable transportation of proMMPs far from their original site of production. Due to motion-associated cyclic changes of the intra-articular pressure, fluid-phase MMPs stabilized by TIMPs might be absorbed to implant surfaces and interface tissues and help to dissect the implant/cement-to-bone interface in situ. Consequently, they may contribute to local proteolytic/tissue destructive events and aseptic loosening.  
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CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't  
Aged

Arthritis, Rheumatoid: ME, metabolism  
Enzyme-Linked Immunosorbent Assay  
Gelatin: DU, diagnostic use  
\*Hip Prosthesis  
Immunoblotting  
Matrix Metalloproteinases: AI, antagonists & inhibitors  
\*Matrix Metalloproteinases: ME, metabolism  
Microscopy, Electron, Scanning  
Middle Age  
Osteoarthritis: ME, metabolism  
\*Prosthesis Failure  
Reoperation  
\*Synovial Fluid: ME, metabolism  
\*Tissue Inhibitor of Metalloproteinases: ME, metabolism  
Tissue Inhibitor-of Metalloproteinase-2: ME, metabolism  
Tissue-Inhibitor of Metalloproteinase-1: ME, metabolism  
RN 127497-59-0 (Tissue Inhibitor-of Metalloproteinase-2); 9000-70-8 (Gelatin)

CN 0 (Tissue Inhibitor of Metalloproteinases); 0 (Tissue-Inhibitor of Metalloproteinase-1); EC 3.4.24.- (Matrix Metalloproteinases)

L120 ANSWER 6 OF 7 MEDLINE

AN 1998148233 MEDLINE

DN 98148233 PubMed ID: 9487253

TI Comparative immunolocalization studies of collagenase 1 and **collagenase 3** production in the rheumatoid lesion, and by human chondrocytes and synoviocytes in vitro.

AU Tetlow L C; Woolley D E

CS University Department of Medicine, Manchester Royal Infirmary.

SO BRITISH JOURNAL OF RHEUMATOLOGY, (1998 Jan) 37 (1) 64-70.

Journal code: 8302415. ISSN: 0263-7103.

CY ENGLAND: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 199803

ED Entered STN: 19980326

Last Updated on STN: 20000303

Entered Medline: 19980319

AB The degradation of fibrillar type II collagen is a major feature of cartilage destruction in rheumatoid arthritis (RA). Since **collagenase 3** is produced by chondrocytes and preferentially degrades type II cartilage collagen, it seemed likely that this enzyme would have a prominent role in the destruction of rheumatoid joints. Using immunolocalization techniques, we have examined and compared the production and distributions of collagenase 1 and **collagenase 3** in cells and tissues derived from rheumatoid knee arthroplasties. Primary cultures of chondrocytes stimulated with interleukin-1 beta showed that most of the cells produced collagenase 1, whereas only a minority (approximately 5-10%) produced **collagenase 3**; a few chondrocytes demonstrated the co-ordinate production of both enzymes. Primary cultures of rheumatoid synoviocytes produced collagenase 1, but not **collagenase 3**. Both enzymes were demonstrated in the rheumatoid lesion. Collagenase 1 was more commonly observed in both synovium and cartilage (22 of the 28 specimens), was especially prominent at cartilage erosion sites, and most of the positive specimens demonstrated extracellular enzyme. By contrast, **collagenase 3** was observed less frequently (7/28 specimens) and was produced by relatively few chondrocytes and synovial cells, this usually being much less than that observed for chondrocytes of osteoarthritic cartilage. These observations suggest different regulatory mechanisms for the production of collagenases 1 and 3 in the rheumatoid lesion, and demonstrate that the distribution and production of collagenase 1 are far more prevalent than those for **collagenase 3**.

CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't

\*Arthritis, Rheumatoid: ME, metabolism

Cartilage, Articular: ME, metabolism

Cells, Cultured

Chondrocytes: DE, drug effects

\*Chondrocytes: ME, metabolism

\*Collagenases: ME, metabolism

Fluorescent Antibody Technique, Indirect

Immunohistochemistry

Interleukin-1: PD, pharmacology

Interstitial Collagenase

Synovial Membrane: CY, cytology

Synovial Membrane: DE, drug effects

\*Synovial Membrane: ME, metabolism

CN 0 (Interleukin-1); EC 3.4.24.- (Collagenases); EC 3.4.24.- (**collagenase 3**); EC 3.4.24.7 (Interstitial Collagenase)

L120 ANSWER 7 OF 7 MEDLINE  
AN 97402354 MEDLINE  
DN 97402354 PubMed ID: 9259418  
TI **Matrix metalloproteinase 13 (collagenase 3)** in human rheumatoid synovium.  
AU Lindy O; Konttinen Y T; Sorsa T; Ding Y; Santavirta S; Ceponis A; Lopez-Otin C  
CS University of Helsinki, Finland.  
SO ARTHRITIS AND RHEUMATISM, (1997 Aug) 40 (8) 1391-9.  
Journal code: 0370605. ISSN: 0004-3591.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Abridged Index Medicus Journals; Priority Journals  
EM 199709  
ED Entered STN: 19970922  
Last Updated on STN: 19970922  
Entered Medline: 19970908  
AB OBJECTIVE: To show the eventual presence and extent of production of **matrix metalloproteinase 13 (MMP-13, or collagenase 3)** in rheumatoid synovial tissue samples and extracts, and to assess the inhibition characteristics of recombinant **MMP-13**. METHODS: Immunohistochemical avidin-biotin-peroxidase complex staining/morphometry was used to analyze **MMP-13**-positive cells in situ. Neutral salt extraction of synovial tissue, electrophoresis of the extract in different buffer systems, and Western blotting were also used. The inhibitory properties of doxycycline, clodronate, pamidronate, and D-penicillamine for recombinant enzyme were determined with a soluble type II collagen assay. RESULTS: **MMP-13** was detected in fibroblast- and macrophage-like mononuclear cells in the synovial lining and stroma and in vascular endothelial cells. The overall expression of **MMP-13** in these cells in the synovial stroma was high in rheumatoid arthritis (86 +/- 12%) compared with osteoarthritis (17 +/- 5%) patient samples (P = 0.0027). In a high-pH native electrophoresis gel, immunoreactivity to anti-MMP-1 and anti-MMP-13 were clearly separated, with anti-MMP-13-immunoreactive material migrating faster than anti-MMP-1-immunoreactive material. Finally, in contrast to MMP-1 and MMP-8, **MMP-13** was found to be relatively resistant to the inhibitory effects of doxycycline and clodronate in vitro. CONCLUSION: Due to its localization in synovial tissue, its substrate profile, increased expression, and relative resistance to known MMP inhibitors, **MMP-13** is suggested to play a major role in the pathogenesis of tissue destruction in rheumatoid arthritis.  
CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't  
Adult  
Aged  
Aged, 80 and over  
\*Arthritis, Rheumatoid: EN, enzymology  
Arthritis, Rheumatoid: GE, genetics  
Cartilage, Articular: CH, chemistry  
Cartilage, Articular: EN, enzymology  
Clodronic Acid: PD, pharmacology  
Collagenases: AI, antagonists & inhibitors  
\*Collagenases: GE, genetics  
Diphosphonates: PD, pharmacology  
Immunoblotting  
Immunohistochemistry  
Middle Age  
Osteoarthritis: EN, enzymology  
Osteoarthritis: GE, genetics  
Penicillamine: PD, pharmacology

RNA, Messenger: ME, metabolism  
Recombinant Proteins: GE, genetics  
Synovial Membrane: CH, chemistry  
\*Synovial Membrane: EN, enzymology

RN 10596-23-3 (Clodronic Acid); 40391-99-9 (amidronate); 52-67-5  
(Penicillamine)  
CN 0 (Diphosphonates); 0 (RNA, Messenger); 0 (Recombinant Proteins); EC  
3.4.24.- (Collagenases); EC 3.4.24.- (collagenase 3)

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RECORDS LAST ADDED: 7 November 2002 (20021107/ED)

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L126 ANSWER 1 OF 1 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AN 2001:338794 BIOSIS

DN PREV200100338794

TI Analysis of the cell infiltrate and expression of matrix metalloproteinases and granzyme B in paired synovial biopsy specimens from the cartilage-pannus junction in patients with RA.

AU Smeets, T. J. M. (1); Kraan, M. C.; Galjaard, S.; Youssef, P. P.; Smith, M. D.; Tak, P. P.

CS (1) Division of Clinical Immunology and Rheumatology, Department of Medicine, Academic Medical Centre, Meibergdreef 9, 1105 AZ, Amsterdam: T.J.Smeets@amc.uva.nl Netherlands

SO Annals of the Rheumatic Diseases, (June, 2001) Vol. 60, No. 6, pp. 561-565. print.  
ISSN: 0003-4967.

DT Article

LA English

SL English

AB Objectives: Examination of synovial tissue (ST) obtained at surgery because of end stage destructive rheumatoid arthritis (RA) showed that macrophages and fibroblasts are the major cell types at the cartilage-pannus junction (CPJ). This study aimed at defining the cell infiltrate and mediators of joint destruction in ST selected at arthroscopy from the CPJ in patients with RA who did not require joint surgery. Methods: Paired synovial biopsy specimens were obtained at arthroscopy from ST adjacent to the CPJ and the suprapatellar pouch from the knee joints of 17 patients with RA. Immunohistological analysis was performed using monoclonal antibodies to detect T cells, B cells, plasma cells, macrophages, fibroblast-like synoviocytes, mast cells, and granzyme B+ cytotoxic cells as well as the expression of metalloproteinase (MMP)-1, MMP-3, and MMP-13. The sections were evaluated by computer assisted image analysis and semiquantitative analysis. Results: The cell infiltrate comprised mainly T cells, macrophages, and plasma cells. The ST was also infiltrated by the other cell types, but at lower numbers. Expression of MMPs was abundant, especially MMP-3. The features of ST at the CPJ were generally similar to those at the suprapatellar pouch. Conclusions: The synovium at the CPJ in patients with RA who did not require joint surgery exhibits, in general, the same type of cell infiltrate and expression of MMPs and granzymes as ST from the suprapatellar pouch. The pathological changes that have been described at the CPJ in patients with RA with end stage, destructive disease may well

- reflect the transition to a process in which macrophages, fibroblast-like synoviocytes, and other cell types become increasingly important.
- CC Cytology and Cytochemistry - Animal \*02506  
 Cytology and Cytochemistry - General \*02502  
 Enzymes - General and Comparative Studies; Coenzymes \*10802  
**Pathology, General and Miscellaneous - Diagnostic \*12504**  
 Blood, Blood-Forming Organs and Body Fluids - Blood and Lymph Studies \*15002  
 Blood, Blood-Forming Organs and Body Fluids - Blood Cell Studies \*15004  
 Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry \*18004  
**Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology \*18006**  
 Immunology and Immunochemistry - General; Methods \*34502  
 Immunology and Immunochemistry - Immunopathology, Tissue Immunology \*34508  
 Allergy \*35500
- IT Major Concepts  
 Enzymology (Biochemistry and Molecular Biophysics); Cell Biology; .  
 Clinical Immunology (Human Medicine, Medical Sciences); Rheumatology (Human Medicine, Medical Sciences)
- IT Parts, Structures, & Systems of Organisms  
 B cells: blood and lymphatics, immune system; T cells: blood and lymphatics, immune system; knee joint: skeletal system; synovium: skeletal system
- IT Diseases  
 rheumatoid arthritis: connective tissue disease, immune system disease, joint disease
- IT Chemicals & Biochemicals  
 granzyme B; matrix metalloproteinase-1 [MMP-1]: expression;  
**matrix metalloproteinase-13 [MMP-13]: expression; matrix metalloproteinase-3 [MMP-3]: expression**
- IT Alternate Indexing  
 Arthritis, Rheumatoid (MeSH)
- IT Methods & Equipment  
 synovial biopsy: diagnostic method
- IT Miscellaneous Descriptors  
 cartilage-pannus junction
- RN 143180-74-9 (GRANZYME B)  
 9001-12-1 (MATRIX METALLOPROTEINASE-1)  
**175449-82-8 (MATRIX METALLOPROTEINASE-13)**  
**175449-82-8 (MMP-13)**  
 79955-99-0 (MATRIX METALLOPROTEINASE-3)  
 79955-99-0 (MMP-3)

=> d all tot

L137 ANSWER 1 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 AN 2000:540979 BIOSIS  
 DN PREV200000540979  
 TI Induction of **collagenase-3 (MMP-13)**  
 ) in **rheumatoid arthritis** synovial fibroblasts.  
 AU Moore, Bryan A.; Aznavoorian, Sadie; Engler, Jeffrey A.; Windsor, L. Jack  
 (1)  
 CS (1) Department of Oral Biology, Indiana University, Indianapolis, IN,  
 46202-5186 USA  
 SO Biochimica et Biophysica Acta, (18 October, 2000) Vol. 1502, No.  
 2, pp. 307-318. print.  
 ISSN: 0006-3002.  
 DT Article  
 LA English

- SL English
- AB There is a growing body of evidence that implicates matrix metalloproteinases (MMPs) as major players in numerous diseased conditions. The articular cartilage degradation that is characteristic of **rheumatoid arthritis** (RA) is believed to be mediated by the collagenase subfamily of matrix metalloproteinases. The preference of **collagenase-3** (CL-3) for collagen type II makes it a likely candidate in the turnover of articular cartilage and a potential target for drug development. In this study, RA synovial membrane tissue was shown to express CL-3 mRNA by reverse transcriptase-polymerase chain reaction (RT-PCR) and protein by immunohistochemistry. Fibroblasts isolated and cultured from RA synovial membrane tissue were induced to express CL-3 mRNA. CL-3 mRNA was detected after PMA treatment in 16 of the 18 RA synovial membrane fibroblast cell lines established for this study. These fibroblasts also expressed mRNA for collagenase-1 (CL-1, MMP-1), membrane type-1 matrix metalloproteinase, gelatinase A, gelatinase B, stromelysin-1, stromelysin-2, TIMP-1, and TIMP-2. They were further shown to express CL-1 mRNA constitutively and CL-3 mRNA only after stimulation with PMA, IL-1, TGF-beta1, TNF-alpha, or IL-6 with IL-6sR. These fibroblasts also expressed after induction both CL-1 and CL-3 at the protein level as determined by Western blot analyses and immunofluorescence.
- CC Enzymes - General and Comparative Studies; Coenzymes \*10802  
Cytology and Cytochemistry - Animal \*02506  
Biochemical Studies - General \*10060  
    **Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**  
    \*10062  
    Biochemical Studies - Proteins, Peptides and Amino Acids \*10064  
    Endocrine System - General \*17002  
    **Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry** \*18004  
    **Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology**  
    \*18006  
    Immunology and Immunochemistry - Immunopathology, Tissue Immunology  
    \*34508  
    Allergy \*35500
- IT Major Concepts  
    Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and Molecular Biophysics); Skeletal System (Movement and Support)
- IT Parts, Structures, & Systems of Organisms  
    articular cartilage: degradation, skeletal system; synovial fibroblast: skeletal system
- IT Diseases  
    **rheumatoid arthritis**: connective tissue disease, immune system disease, joint disease
- IT Chemicals & Biochemicals  
    CL-3 messenger RNA; IL-6 [interleukin-6]; IL-6sR [interleukin-6sR]; TGF-beta-1 [transforming growth factor-beta-1]; TIMP-1 [tissue inhibitor of matrix metalloproteinase-1]; TNF-alpha [tumor necrosis factor-alpha]; collagen type II; **collagenase-3**: induction; gelatinase A; gelatinase B; matrix metalloproteinase; stromelysin-1; stromelysin-2; synovial membrane
- IT Alternate Indexing  
    **Arthritis, Rheumatoid** (MeSH)
- IT Methods & Equipment  
    Western blot analysis: analytical method; immunofluorescence: analytical method, immunological method; reverse transcriptase-polymerase chain reaction [RT-PCR]: analytical method
- RN 140208-24-8 (TIMP-1)  
    **175449-82-8 (COLLAGENASE-3)**  
    146480-35-5 (GELATINASE A)  
    146480-36-6 (GELATINASE B)  
    141907-41-7 (MATRIX METALLOPROTEINASE)

79955-99-0 (STROMELYSIN-1)  
140610-48-6 (STROMELYSIN-2)

- L137 ANSWER 2 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
AN 2000:490084 BIOSIS  
DN PREV200000490205  
TI Messenger ribonucleic acid expression of 16 matrix metalloproteinases in bone-implant interface tissues of loose artificial hip joints.  
AU Takei, Isao (1); Takagi, Michiaki; Santavirta, Seppo; Ida, Hideo; Ishii, Masaji; Ogino, Toshihiko; Ainola, Mari; Konttinen, Yrjo T.  
CS (1) Department of Orthopedic Surgery, Yamagata University School of Medicine, 2-2-2 Iida-Nishi, Yamagata, 990-9585 Japan  
SO Journal of Biomedical Materials Research, (December 15, 2000)  
Vol. 52, No. 4, pp. 613-620. print.  
ISSN: 0021-9304.  
DT Article  
LA English  
SL English  
AB Matrix metalloproteinases (MMPs) have been reported to be the major factors responsible for aseptic loosening of artificial hip joints. So far, messenger ribonucleic acid (mRNA) expression patterns of seven MMPs have been reported, but that of many other MMPs which have been newly discovered or recently considered to be responsible for prosthetic loosening is still unknown. In this study, mRNA expression pattern of 16 different types of MMPs were analyzed to evaluate which MMPs were locally produced and contributed to prosthetic loosening. Synovium-like interface tissues between bone and prosthesis were collected from 18 cases of aseptic loose artificial hip joint at revision surgery. Six cases of normal synovium were used as controls. Total RNA was extracted by single-step acid guanidinium-thiocyanate-phenol-chloroform procedure. mRNA expression of MMPs was analyzed by semiquantitative reverse transcription-polymerase chain reaction. Based on local expression pattern of MMPs at the mRNA level, aseptic loose artificial hip joint was characterized by elevated expression of MMP-1, MMP-9, MMP-10, MMP-12, and **MMP-13**; moderate expression of MMP-2, MMP-7, MMP-8, MMP-11, membrane type (MT)1-MMP (MMP-14), MT2-MMP (MMP-15), MT3-MMP (MMP-16), MT4-MMP (MMP-17), and MMP-19; lower expression of MMP-3; and little significance of MMP-20. The MMPs detected in this study can potentially degrade almost all components of the periprosthetic extracellular matrix. Thus, many MMP type enzymes possibly contribute to prosthetic loosening and osteolysis through pathologic extracellular matrix degradation and connective tissue/bone remodeling around prostheses.  
CC Enzymes - General and Comparative Studies; Coenzymes \*10802  
**Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**  
**\*10062**  
**Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry \*18004**  
BC Hominidae 86215  
IT Major Concepts  
Enzymology (Biochemistry and Molecular Biophysics); Equipment, Apparatus, Devices and Instrumentation; Skeletal System (Movement and Support)  
IT Parts, Structures, & Systems of Organisms  
bone: skeletal system; hip joint: skeletal system; synovium: skeletal system  
IT Chemicals & Biochemicals  
MMP-1 [matrix metalloproteinase-1]: expression; MMP-10 [matrix metalloproteinase-10]: expression; MMP-11 [matrix metalloproteinase-11]: expression; MMP-12 [matrix metalloproteinase-12]: expression; **MMP-13 [matrix metalloproteinase-13]: expression**; MMP-19 [matrix metalloproteinase-19]: expression; MMP-2 [matrix metalloproteinase-2]: expression; MMP-20

[matrix metalloproteinase-20]: expression; MMP-3 [matrix metalloproteinase-3]: expression; MMP-7 [matrix metalloproteinase-7]: expression; MMP-8 [matrix metalloproteinase-8]: expression; MMP-9 [matrix metalloproteinase-9]: expression; MT1-MMP [MMP-14, membrane type 1-matrix metalloproteinase]: expression; MT2-MMP [MMP-15, membrane type 2-matrix metalloproteinase]: expression; MT3-MMP [MMP-16, membrane type 3-matrix metalloproteinase]: expression; MT4-MMP [MMP-17, membrane type 4-matrix metalloproteinase]: expression; messenger RNA: expression

## IT Methods &amp; Equipment

artificial hip joint: aseptic loosening, prosthetic; reverse transcriptase-polymerase chain reaction: analytical method

## ORGN Super Taxa

Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

## ORGN Organism Name

human (Hominidae): patient

## ORGN Organism Superterms

Animals; Chordates; Humans; Mammals; Primates; Vertebrates

RN 9001-12-1 (MATRIX METALLOPROTEINASE-1)  
 140610-48-6 (MATRIX METALLOPROTEINASE-10)  
 145267-01-2 (MMP-11)  
 145267-01-2 (MATRIX METALLOPROTEINASE-11)  
 9004-06-2 (MMP-12)  
 9004-06-2 (MATRIX METALLOPROTEINASE-12)  
 175449-82-8 (MMP-13)  
 175449-82-8 (MATRIX METALLOPROTEINASE-13)  
 188364-80-9 (MATRIX METALLOPROTEINASE-19)  
 146480-35-5 (MMP-2)  
 146480-35-5 (MATRIX METALLOPROTEINASE-2)  
 185766-51-2 (MATRIX METALLOPROTEINASE-20)  
 79955-99-0 (MMP-3)  
 79955-99-0 (MATRIX METALLOPROTEINASE-3)  
 141256-52-2 (MMP-7)  
 141256-52-2 (MATRIX METALLOPROTEINASE-7)  
 9001-12-1 (MMP-8)  
 9001-12-1 (MATRIX METALLOPROTEINASE-8)  
 146480-36-6 (MMP-9)  
 146480-36-6 (MATRIX METALLOPROTEINASE-9)  
 161384-17-4 (MT1-MMP)  
 161384-17-4 (MEMBRANE TYPE 1-MATRIX METALLOPROTEINASE)  
 172308-17-7 (MT2-MMP)  
 182970-56-5 (MEMBRANE TYPE 3-MATRIX METALLOPROTEINASE)  
 203810-08-6 (MT4-MMP)

L137 ANSWER 3 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AN 2000:452357 BIOSIS

DN PREV200000452357

TI **Matrix metalloproteinase-13** expression in rabbit knee joint connective tissues: Influence of maturation and response to injury.

AU Le Graverand, Marie-Pierre Hellio; Eggerer, Jonna; Sciore, Paul; Reno, Carol; Vignon, Eric; Otterness, Ivan; Hart, David A. (1)

CS (1) McCaig Centre for Joint Injury and Arthritis Research, University of Calgary HSC, 3330 Hospital Drive N.W., Calgary, AB, T2N 4N1 Canada

SO Matrix Biology, (September, 2000) Vol. 19, No. 5, pp. 431-441.

print.

ISSN: 0945-053X.

DT Article

LA English

SL English

AB The hypothesis of the present work was that expression of **matrix metalloproteinase-13 (MMP-13, collagenase-3)** would be induced during conditions



involving important matrix remodeling such as ligament maturation, scar healing and joint instability. Therefore, **MMP-13** expression in the medial collateral ligament (MCL) during the variable situations of tissue maturation and healing was assessed. **MMP-13** expression in three intra-articular connective tissues of the knee (i.e. articular cartilage, menisci and synovium) following the transection of the anterior cruciate ligament of the knee was evaluated at 3 and 8 weeks post-injury. **MMP-13** mRNA (semi-quantitative RT-PCR) and protein (immunohistochemistry and Western blotting) were detected in all of the tissues studied. Significantly higher MCL mRNA levels for **MMP-13** were detected during the early phases of tissue maturation (i.e. 29 days in utero and 2-month-old rabbits) compared to later phases (5- and 12-month-old rabbits). This pattern of expression was recapitulated following MCL injury, with very high levels of expression in scar tissue at 3 weeks post-injury and then a decline to levels not significantly different from control values by 14 weeks. Elevated mRNA levels correlated with increased protein levels for **MMP-13** in both menisci and synovium following the transection of the anterior cruciate ligament and during medial collateral ligament healing. These results indicate that **MMP-13** expression is regulated by a number of variables and that high levels of expression occur in situations when connective tissue remodeling is very active.

- CC Enzymes - General and Comparative Studies; Coenzymes \*10802  
 Biochemical Studies - Nucleic Acids, Purines and Pyrimidines  
 \*10062  
 Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology  
 and Biochemistry \*18004  
 BC Leporidae 86040  
 IT Major Concepts  
 Enzymology (Biochemistry and Molecular Biophysics); Skeletal System  
 (Movement and Support)  
 IT Parts, Structures, & Systems of Organisms  
 knee joint connective tissues: skeletal system; medial collateral  
 ligament: skeletal system  
 IT Chemicals & Biochemicals  
 mRNA [messenger RNA]; matric metalloproteinase-13  
 IT Miscellaneous Descriptors  
 connective tissue remodeling; gene expression  
 ORGN Super Taxa  
 Leporidae; Lagomorpha, Mammalia, Vertebrata, Chordata, Animalia  
 ORGN Organism Name  
 rabbit (Leporidae)  
 ORGN Organism Superterms  
 Animals; Chordates; Lagomorphs; Mammals; Nonhuman Mammals; Nonhuman  
 Vertebrates; Vertebrates

- L137 ANSWER 4 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 AN 1998:267294 BIOSIS  
 DN PREV199800267294  
 TI Collagenase 1 and collagenase 3 expression in a guinea  
 pig model of osteoarthritis.  
 AU Huebner, Janet L.; Otterness, Ivan G.; Freund, Edward M.; Caterson, Bruce;  
 Kraus, Virginia B. (1)  
 CS (1) Dep. Med., Div. Rheumatol. Allergy Clinical Immunol., Box 3416, Duke  
 Univ. Med. Cent., Durham, NC 27710 USA  
 SO Arthritis & Rheumatism, (May, 1998) Vol. 41, No. 5, pp. 877-890.  
 ISSN: 0004-3591.  
 DT Article  
 LA English  
 AB Objective. To analyze the in vivo compartmental expression of collagenases  
 1 and 3 (MMP-1 and **MMP13**) in the Hartley guinea pig model of  
 spontaneously occurring osteoarthritis (OA) for the purpose of

elucidating their roles in the pathogenesis of OA. Methods. Competitive reverse transcription polymerase chain reaction (RT-PCR) and immunohistochemistry quantification of messenger RNA (mRNA) and protein levels in medial and lateral tibia) cartilage obtained from the knee joints of 2-month-old (no OA) and 12-month-old (OA) guinea pigs. Results. The patterns of mRNA expression of collagenases 1 and 3 varied with the age of the animal and the compartment of the knee. We also found focal areas of collagenase 1 and **collagenase 3** proteins localized to the extracellular matrix of OA lesion sites, coincident with three-quarter/one-quarter collagen cleavage. **Collagenase 3** protein was also abundant throughout the medial tibial cartilage of 2-month-old animals. Conclusion. This represents the first description of bona fide collagenase 1 in a rodent species. Recent evidence, however, based on analysis of mitochondrial DNA homologies, suggests that the guinea pig is not a member of the order Rodentia and may be more closely allied with lagomorphs. This taxonomic controversy leaves open to question the issue of the expression of collagenase 1 in other rodents, such as mice and rats. The presence of active collagenases 1 and 3 at OA lesion sites is consistent with an important role of these enzymes in the cartilage degradation of OA in guinea pigs. The expression of **collagenase 3** in medial tibial cartilage from 2-month-old guinea pigs may signify a role of this enzyme in cartilage remodeling with growth and development, or it may represent an early molecular manifestation of OA.

- CC **Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry \*18004**  
**Biochemical Studies - Nucleic Acids, Purines and Pyrimidines \*10062**  
 Biochemical Studies - Proteins, Peptides and Amino Acids \*10064  
 Enzymes - Physiological Studies \*10808  
 Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease \*12508  
**Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology \*18006**  
 BC Caviidae 86300  
 IT Major Concepts  
 Enzymology (Biochemistry and Molecular Biophysics); Skeletal System (Movement and Support)  
 IT Parts, Structures, & Systems of Organisms  
 tibial cartilage: skeletal system  
 IT Diseases  
**osteoarthritis**: joint disease, pathogenesis  
 IT Chemicals & Biochemicals  
 collagenase I: in vivo compartmental expression; **collagenase 3**: in vivo compartmental expression; mRNA [messenger RNA]  
 ORGN Super Taxa  
 Caviidae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia  
 ORGN Organism Name  
 Hartley guinea-pig (Caviidae): animal model  
 ORGN Organism Superterms  
 Animals; Chordates; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Rodents; Vertebrates
- L137 ANSWER 5 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 AN 1998:226134 BIOSIS  
 DN PREV199800226134  
 TI Cloning of the gene for interstitial **collagenase-3 (matrix metalloproteinase-13)** from rabbit synovial fibroblasts: Differential expression with collagenase-1 (matrix metalloproteinase-1.  
 AU Vincenti, Matthew P. (1); Coon, Charles I.; Mengshol, J. Andrew; Yocum, Sue; Mitchell, Peter; Brinckerhoff, Constance E.  
 CS (1) Dep. Med., Dartmouth Med. Sch., Hanover, NH 03755 USA

- SO Biochemical Journal, (April, 1998) Vol. 331, No. 1, pp. 341-346.  
ISSN: 0264-6021.
- DT Article
- LA English
- AB Cartilage, bone and the interstitial stroma, composed largely of the interstitial collagens, types I, II and III, are remodelled by three members of the metalloproteinase (MMP) family, collagenase-1 (MMP-1), collagenase-2 (MMP-8) and **collagenase-3 (MMP-13)**. MMP-1 and **MMP-13** may contribute directly to disease progression, since they are induced in patients with **rheumatoid arthritis** and **osteoarthritis**. The study of MMP-1 and **MMP-13** gene regulation in models of **arthritic** disease has been problematic because mice and rats, which are typically used, only possess a homologue of **MMP-13**. Here we show that in contrast with mice and rats, rabbits possess distinct genes homologous to human MMP-1 and **MMP-13**. Furthermore, rabbit **MMP-13** is expressed simultaneously with MMP-1 in chondrocytes and synovial fibroblasts in response to the cytokines interleukin-1 and tumour necrosis factor-alpha, or the phorbol ester PMA. The time course of **MMP-13** induction is more rapid and transient than that of MMP-1, suggesting that distinct mechanisms regulate the expression of these two collagenases. We have cloned the rabbit **MMP-13** gene from synovial fibroblasts and demonstrated that the rabbit gene shares greater homology with human **MMP-13** than does the mouse interstitial collagenase. Together with the fact that mice and rats do not possess a homologue to human MMP-1, our data suggest that the rabbit provides an appropriate model for studying the roles of interstitial collagenases in connective-tissue diseases, such as **rheumatoid arthritis** and **osteoarthritis**.
- CC Enzymes - Chemical and Physical \*10806  
Genetics and Cytogenetics - Animal \*03506  
**Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**  
**\*10062**  
Replication, Transcription, Translation \*10300  
Endocrine System - Gonads and Placenta \*17006  
**Bones, Joints, Fasciae, Connective and Adipose Tissue - Physiology and Biochemistry \*18004**
- BC Leporidae 86040
- IT Major Concepts  
Enzymology (Biochemistry and Molecular Biophysics); Molecular Genetics (Biochemistry and Molecular Biophysics); Skeletal System (Movement and Support)
- IT Parts, Structures, & Systems of Organisms  
synovial fibroblast: skeletal system
- IT Diseases  
**osteoarthritis: joint disease; rheumatoid arthritis: connective tissue disease, immune system disease, joint disease**
- IT Chemicals & Biochemicals  
collagenase-1: matrix metalloproteinase-1; interstitial  
**collagenase-3: differential expression, matrix metalloproteinase-13**
- IT Methods & Equipment  
gene cloning
- IT Miscellaneous Descriptors  
nucleotide sequence
- ORGN Super Taxa  
Leporidae: Lagomorpha, Mammalia, Vertebrata, Chordata, Animalia
- ORGN Organism Name  
rabbit (Leporidae)
- ORGN Organism Superterms  
Animals; Chordates; Lagomorphs; Mammals; Nonhuman Mammals; Nonhuman

## Vertebrates; Vertebrates

L137 ANSWER 6 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

AN 1997:294543 BIOSIS

DN PREV199799593746

TI **Collagenase-3 (MMP-13)** is expressed during human fetal ossification and re-expressed in postnatal bone remodeling and in **rheumatoid arthritis**.

AU Stahle-Backdahl, Mona (1); Sandstedt, Bengt; Bruce, Kerstin; Lindahl, Anders; Jimenez, Maria G.; Vega, Jose A.; Lopez-Otin, Carlos

CS (1) Dep. Dermatology, Karolinska Hospital, Box 120, S-171 76 Stockholm Sweden

SO Laboratory Investigation, (1997) Vol. 76, No. 5, pp. 717-728.  
ISSN: 0023-6837.

DT Article

LA English

AB To explore possible physiologic functions for the metalloproteinase **collagenase-3**, we have examined its temporal and spatial expression during human fetal development. Except for mesenchymal cells in the umbilical cord at 4 weeks of gestation, signal for **collagenase-3** mRNA was confined to mineralizing skeletal tissue and detected in hypertrophic chondrocytes and osteoblastic cells involved in ossification beginning at 10 weeks and continuing through gestation. These cells were also immunoreactive with **collagenase-3** antiserum, indicating their ability to produce **collagenase-3** protein. In osteoblastic cells, the expression of membrane-type 1 metalloproteinase and 72-kd gelatinase mRNA, which have the capacity to activate **collagenase-3** in vitro, colocalized with that of **collagenase-3**. In postnatal tissues, **collagenase-3** was re-expressed in processes involving skeletal remodeling, such as bone cysts and ectopic bone and cartilage formation. Multinucleated osteoclasts were consistently negative for **collagenase-3**. Furthermore, in patients with seropositive **rheumatoid arthritis**, expression of **collagenase-3** was prominent in articular cartilage, and **collagenase-3** protein was detected by immunoblotting in synovial fluids. Consistent with its substrate specificities, a plausible function for **collagenase-3** in these processes is to preferentially degrade type II collagen, thus serving a role during primary ossification, in skeletal remodeling, and in destructive joint disease.

CC **Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**  
**10062**

Biochemical Studies - Proteins, Peptides and Amino Acids \*10064

Biophysics - Molecular Properties and Macromolecules \*10506

Enzymes - Physiological Studies \*10808

Anatomy and Histology, General and Comparative - Regeneration and

Transplantation \*11107

Pathology, General and Miscellaneous - Inflammation and Inflammatory  
Disease \*12508

**Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology**

**\*18006**

Developmental Biology - Embryology - Morphogenesis, General \*25508

Immunology and Immunochemistry - Immunopathology, Tissue Immunology  
\*34508

BC Hominidae \*86215

IT Major Concepts

Biochemistry and Molecular Biophysics; Clinical Immunology (Human  
Medicine, Medical Sciences); Development; Enzymology (Biochemistry and  
Molecular Biophysics); Pathology; Physiology; Skeletal System (Movement  
and Support)

IT Chemicals & Biochemicals  
GELATINASE

IT Miscellaneous Descriptors  
**COLLAGENASE-3**; CONNECTIVE TISSUE DISEASE;  
 ENZYMOLOGY; EXPRESSION; FETAL OSSIFICATION; FETUS; GELATINASE MESSENGER  
 RNA; IMMUNE SYSTEM DISEASE; JOINT DISEASE; **MATRIX**  
**METALLOPROTEINASE-13**; NEONATE; POSTNATAL BONE  
 REMODELING; **RHEUMATOID ARTHRITIS**; SKELETAL SYSTEM

ORGN Super Taxa  
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name  
 human (Hominidae)

ORGN Organism Superterms  
 animals; chordates; humans; mammals; primates; vertebrates

RN 9040-48-6 (GELATINASE)

L137 ANSWER 7 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 AN 1996:311920 BIOSIS  
 DN PREV199699034276  
 TI The new collagenase, **collagenase-3**, is expressed and  
 synthesized by human chondrocytes but not by synoviocytes: A role in  
**osteoarthritis**.  
 AU Reboul, Pascal; Pelletier, Jean-Pierre; Tardif, Ginette; Cloutier,  
 Jean-Marie; Martel-Pelletier, Johanne (1)  
 CS (1) Rheumatic Disease Unit, Notre-Dame Hosp., 1560 Sherbrooke St. East,  
 Montral, PQ H2L 4K8 Canada  
 SO Journal of Clinical Investigation, (1996) Vol. 97, No. 9, pp. 2011-2019.  
 ISSN: 0021-9738.  
 DT Article  
 LA English  
 AB Recently, a new human collagenase, **collagenase-3** has  
 been identified. Since collagen changes are of particular importance in  
 cartilage degeneration, we investigated if **collagenase-3**  
 plays a role in **osteoarthritis** (OA). Reverse transcriptase-PCR  
 analysis revealed that in articular tissues **collagenase-**  
**3** was expressed by the chondrocytes but not by the synoviocytes.  
 Northern blot analysis of the chondrocyte mRNA revealed the presence of  
 two major gene transcripts of 3.0 and 2.5 kb, and a third one of 2.2 kb  
 was occasionally present. Compared to normal, OA showed a significantly  
 higher (3.0 kb, P ltoreq 0.05; 2.5 kb, P ltoreq 0.03) level of  
**collagenase-3** mRNA expression. **Collagenase-**  
**3** had a higher catalytic velocity rate (about fivefold) than  
 collagenase-1 on type II collagen. With the use of two specific  
 antibodies, we showed that human chondrocytes had the ability to produce  
**collagenase-3** as a proenzyme and as a glycosylated  
 doublet. The chondrocyte **collagenase-3** protein is  
 produced in a significantly higher (P ltoreq 0.04) level in OA (apprx  
 9.5-fold) than in normal. The synthesis and expression of this new  
 collagenase could also be modulated by two proinflammatory cytokines,  
 IL-1-beta and TNF-alpha, in a time- and dose-dependent manner. This study  
 provides novel and interesting data on **collagenase-3**  
 expression and synthesis in human cartilage cells and suggest its  
 involvement in human OA cartilage pathophysiology.

CC Cytology and Cytochemistry - Human \*02508  
**Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**  
**10062**  
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
 Enzymes - Methods \*10804  
 Enzymes - Physiological Studies \*10808  
 Pathology, General and Miscellaneous - Inflammation and Inflammatory  
 Disease \*12508  
 Endocrine System - General \*17002  
**Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology**  
**\*18006**  
 BC Hominidae \*86215

IT Major Concepts  
Cell Biology; Endocrine System (Chemical Coordination and Homeostasis);  
Enzymology (Biochemistry and Molecular Biophysics); Pathology; Skeletal  
System (Movement and Support)

IT Chemicals & Biochemicals  
COLLAGENASE

IT Miscellaneous Descriptors  
CARTILAGE DEGENERATION; INFLAMMATION; INTERLEUKIN-1BETA; MESSENGER RNA;  
REVERSE TRANSCRIPTASE POLYMERASE CHAIN REACTION; TUMOR NECROSIS  
FACTOR-ALPHA

ORGN Super Taxa  
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name  
Hominidae (Hominidae)

ORGN Organism Superterms  
animals; chordates; humans; mammals; primates; vertebrates

RN 9001-12-1 (COLLAGENASE)

L137 ANSWER 8 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
AN 1996:238378 BIOSIS  
DN PREV199698786507  
TI Cloning of **collagenase 3** from the synovial membrane  
and its expression in **rheumatoid arthritis** and  
**osteoarthritis**.  
AU Wernicke, Dirk (1); Seyfert, Christine; Hinzmann, Bernd; Gromnica-Ihe,  
Erika  
CS (1) Max-Delbrueck-Centrum Molekularie Medizin, Robert-Roessle-Str. 10,  
Berlin 13 122 Germany  
SO Journal of Rheumatology, (1996) Vol. 23, No. 4, pp. 590-595.  
ISSN: 0315-162X.  
DT Article  
LA English  
AB Objective. To analyze synovial membrane of patients with  
**rheumatoid arthritis** (RA) for the expression of unknown  
matrix metalloproteinases (MMP). Methods. Degenerate oligonucleotides  
corresponding to highly conserved regions of the MMP gene family and the  
rapid amplification of cDNA ends (RACE) method have been used to search  
for new members of this gene family. MMP gene expression has been  
characterized by Northern blot analysis. Results. We cloned a MMP cDNA  
from the synovial membrane that is completely identical to the recently  
published **collagenase 3** cDNA derived from a human  
breast cancer cDNA library (Freije, et al: J Biol Chem 1994;269:16766-73).  
**Collagenase 3** is expressed in parallel with interstitial  
collagenase and stromelysin 1 in RA and **osteoarthritis** (OA).  
**Collagenase 3** gene expression was not detected in  
several normal human tissues. Conclusion. The expression of  
**collagenase 3** in the synovial membrane in RA and OA  
suggests its involvement in articular tissue degradation.

CC **Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**  
10062  
Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
Biophysics - Molecular Properties and Macromolecules \*10506  
Biophysics - Membrane Phenomena \*10508  
Enzymes - Chemical and Physical \*10806  
Chordate Body Regions - Extremities \*11318  
Pathology, General and Miscellaneous - Inflammation and Inflammatory  
Disease \*12508  
**Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology**  
**\*18006**  
Immunology and Immunochemistry - Immunopathology, Tissue Immunology  
\*34508

BC Hominidae \*86215  
IT Major Concepts

Biochemistry and Molecular Biophysics; Clinical Immunology (Human Medicine, Medical Sciences); Enzymology (Biochemistry and Molecular Biophysics); Membranes (Cell Biology); Morphology; Pathology; Skeletal System (Movement and Support)

IT Chemicals & Biochemicals  
COLLAGENASE

IT Miscellaneous Descriptors  
COMPLEMENTARY DNA; CONNECTIVE TISSUE DEGRADATION; JOINT DESTRUCTION;  
MATRIX METALLOPROTEINASE; MESSENGER RNA

ORGN Super Taxa  
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name  
human (Hominidae)

ORGN Organism Superterms  
animals; chordates; humans; mammals; primates; vertebrates

RN 9001-12-1 (COLLAGENASE)

L137 ANSWER 9 OF 9 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
AN 1996:238311 BIOSIS  
DN PREV199698786440  
TI Cloning, expression, and type II collagenolytic activity of **matrix metalloproteinase-13** from human **osteoarthritic** cartilage.  
AU Mitchell, Peter G. (1); Magna, Holly A.; Reeves, Lisa M.; Lopresti-Morrow, Lori L.; Yocum, Sue A.; Rosner, Philip J.; Geoghegan, Kieran F.; Hambor, John E.  
CS (1) Pfizer Central Res., Eastern Point Rd., Groton, CT 06340 USA  
SO Journal of Clinical Investigation, (1996) Vol. 97, No. 3, pp. 761-768.  
ISSN: 0021-9738.  
DT Article  
LA English  
AB Proteolysis of triple-helical collagen is an important step in the progression toward irreversible tissue damage in **osteoarthritis**. Earlier work on the expression of enzymes in cartilage suggested that collagenase-1 (MMP-1) contributes to the process. Degenerate reverse transcription polymerase chain reaction experiments, Northern blot analysis, and direct immunodetection have now provided evidence that **collagenase-3 (MMP-13)**, an enzyme recently cloned from human breast carcinoma, is expressed by chondrocytes in human **osteoarthritic** cartilage. Variable levels of **MMP-13** mRNA were present in total RNA prepared from six **osteoarthritic** cartilage samples. Expression of both **MMP-13** and MMP-1 in cartilage was significantly induced at both the message and protein levels by interleukin-1-alpha. Recombinant **MMP-13** cleaved type II collagen to give characteristic 3/4 and 1/4 fragments; however, **MMP-13** turned over type II collagen at least 10 times faster than MMP-1. Experiments with intact type II collagen as well as a synthetic peptide suggested that **MMP-13** cleaved type II collagen at the same bond as MMP-1, but this was then followed by a secondary cleavage that removed three amino acids from the 1/4 fragment amino terminus. The expression of **MMP-13** in **osteoarthritic** cartilage and its activity against type II collagen suggest that the enzyme plays a significant role in cartilage collagen degradation, and must consequently form part of a complex target for proposed therapeutic interventions based on collagenase inhibition.

CC **Biochemical Studies - Nucleic Acids, Purines and Pyrimidines**  
10062  
Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
Biophysics - Molecular Properties and Macromolecules \*10506  
Enzymes - Chemical and Physical \*10806  
Pathology, General and Miscellaneous - Inflammation and Inflammatory Disease \*12508

Pathology, General and Miscellaneous - Therapy \*12512  
 Bones, Joints, Fasciae, Connective and Adipose Tissue - Pathology  
 \*18006

BC Hominidae \*86215

IT Major Concepts  
 Biochemistry and Molecular Biophysics; Enzymology (Biochemistry and  
 Molecular Biophysics); Pathology; Skeletal System (Movement and  
 Support)

IT Miscellaneous Descriptors  
 ENZYME STRUCTURE; MESSENGER RNA; THERAPY PLANNING

ORGN Super Taxa  
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name  
 Hominidae (Hominidae)

ORGN Organism Superterms  
 animals; chordates; humans; mammals; primates; vertebrates

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>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER  
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[http://www.derwent.com/userguides/dwpi\\_guide.html](http://www.derwent.com/userguides/dwpi_guide.html) <<<

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L151 ANSWER 1 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 2002-171797 [22] WPIX

DNC C2002-053215

TI Novel genetic variants of **matrix metalloproteinase**  
**13 (collagenase 3)** gene useful in studying  
 expression and function of the protein, and for screening drugs to treat  
 diseases e.g. cancer and arthritis.

DC B04 D16

IN FINKEL, K; KLIEM, S E; MESSER, C; TANGUAY, D A

PA (GENA-N) GENAISSANCE PHARM INC

CYC 96

PI WO 2002006294 A2 20020124 (200222)\* EN 109p C07H000-00

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ  
 NL OA PT SD SE SL SZ TR TZ UG ZW

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 KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU  
 SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW



ADT AU 2001076919 A 20020130 (200236) C07H000-00  
 WO 2002006294 A2 WO 2001-US22238 20010713; AU 2001076919 A AU 2001-76919  
 20010713  
 FDT AU 2001076919 A Based on WO 200206294  
 PRAI WO 2000-US22693 20000817; US 2000-217950P 20000713  
 IC ICM C07H000-00  
 AB WO 200206294 A UPAB: 20020409  
 NOVELTY - A polynucleotide (I) comprising a nucleotide sequence which is a  
 polymorphic variant of a reference sequence for the **matrix**  
**metalloproteinase 13 (MMP13)** gene,  
**MMP13** cDNA, or their fragments, is new.

DETAILED DESCRIPTION - A polynucleotide (I) comprising a nucleotide  
 sequence which is a polymorphic variant of a reference sequence for the  
**matrix metalloproteinase 13 (MMP13)**  
 gene, **MMP13** cDNA, or their fragments, is new.

(I) comprises a nucleotide sequence (ss) selected from:

(a) a sequence (S1) comprising **MMP13** isogene, selected from  
 14 isogenes, with regions of a sequence (SS) of 11495, 3364 and 7121 base  
 pair (bp) as given in specification, and defined by corresponding set of  
 polymorphisms whose locations and identities are given in specification;

(b) sequence (S2) having fragment of (S1), where the fragment  
 comprises one or more polymorphism selected from guanine (G) at PS1, PS5,  
 PS6, PS12, PS16, PS17, PS18; thymine (T) at PS2, PS3, PS10, PS13; adenine  
 at PS4, PS7, PS8, PS9; cytosine at PS11, PS14, PS15;

(c) a nucleotide sequence which is complementary to (S1) or (S2); or

(d) nucleotide sequence from a coding sequence (S3) for **MMP13**  
 isogene selected from 8c, 10c and 12c as given in the specification, where  
 each of the sequences comprises a nucleotide sequence of 1023 bp as given  
 in the specification except at each of polymorphic site (PS) at position  
 326, 1080 and 1169; and a fragment of (S3), where the fragment comprises a  
 polymorphism selected from T, C, G at position corresponding to nucleotide  
 326, 1080 and 1169, respectively.

INDEPENDENT CLAIMS are also included for the following:

(1) a recombinant non-human organism (II) transformed or transfected  
 with (I);

(2) an isolated polypeptide (III) comprising a sequence which is a  
 polymorphic variant (PV) of a reference sequence for **MMP13**  
 protein having a 471 amino acid sequence as given in the specification or  
 its fragment and PV comprises one or more variant amino acids selected  
 from L and G at a position corresponding to position 109 and 390,  
 respectively;

(3) an isolated monoclonal antibody (Ab) specific for and  
 immunoreactive with (III);

(4) a computer system for storing and analyzing polymorphism data for  
**MMP13** gene comprising a central processing unit, communication  
 interface, display device, input device and database containing the  
 polymorphism data, where the polymorphism data comprises the haplotypes  
 (HTS) and haplotype pairs (HP) as given in the specification;

(5) a genome anthology for **MMP13** gene which comprises  
**MMP13** isogenes defined by haplotypes 1-15 as given in the  
 specification;

(6) haplotyping (M1) **MMP13** gene of an individual comprising  
 determining which of the HTS, given in fully defined base pair sequence  
 given in the specification, defines one copy or both copies of the  
 individuals **MMP13** gene, where a each of the HTS comprises a set  
 of polymorphisms or HP consists of first and second HTS which comprises  
 first and second sets of polymorphisms whose location and identities are  
 given in the specification;

(7) genotyping (M2) **MMP13** of an individual comprising  
 determining for the two copies of **MMP13** gene present in the  
 individual, the identity of nucleotide pair at one or more PS from PS1-18,  
 where one or more PS have the location and alternative alleles having SS;

(8) predicting (M3) a haplotype pair for **MMP13** gene of an

individual comprising identifying **MMP13** gene genotype for the individual, where the genotype comprises the nucleotide pair at two or more PS; enumerating all possible haplotype pairs which are consistent with the genotype; comparing the possible haplotype pairs to (HP); and assigning a haplotype pair to the individual that is consistent with the data;

(9) identifying (M4) an association between a trait and at least one HTS or HP of **MMP13** gene, comprising comparing the frequency of HTS or HP in a population exhibiting the trait with the frequency of HTS or HP in reference population, where a higher frequency of HTS or HP in the trait population than in the reference population indicates the trait is associated with HTS or HP;

(10) an isolated genotyping oligonucleotide (especially allele-specific oligonucleotides (ASO)) for detecting a polymorphism in **MMP13** gene at a PS;

(11) screening for drugs targeting (III) by contacting the **MMP13** polymorphic variant with a candidate agent and assaying for binding activity; and

(12) a kit (IV) for genotyping **MMP13** gene of an individual comprising a set of oligonucleotides designed to genotype each of PS.

ACTIVITY - Cytostatic; Antiarthritic.

MECHANISM OF ACTION - Gene therapy. No supporting data is given.

USE - (III) is useful for screening drug targeting (III) comprising contacting (III) with a candidate agent and assaying for binding activity. M1 is useful for haplotyping **MMP13** gene in an individual; M2 is useful for genotyping **MMP13** gene of an individual; M3 is useful for predicting a haplotype pair for **MMP13** gene of an individual; and M4 is useful for identifying an association between a trait and at least one HTS or HP of **MMP13** gene (all claimed).

(I) is useful in studying the expression and function of **MMP13**, and in expressing **MMP13** protein for use in screening for candidate drugs to treat diseases related to **MMP13** activity and in studying the effect of the variation on the biological activity of **MMP13** as well as on the binding affinity of candidate drugs targeting **MMP13** for the treatment of cancer, arthritis. M1 is further used by the pharmaceutical research scientist to validate **MMP13** as a candidate target for, and in design of clinical trials of candidate drugs for, treating a specific condition drugs or disease predicted to be associated with **MMP13** activity. The monoclonal antibody is useful in a variety of diagnostic and prognostic formats and therapeutic methods. (V) is useful in studying expression of the **MMP13** isogenes in vivo, for in vivo screening and testing of drugs targeted against **MMP13** protein, and for testing the efficacy of therapeutic agents and compounds for cancer and arthritis in a biological system. ASO is useful as probes and primers, and for assaying a polymorphism in the target region.

ADVANTAGE - Without requiring any a priori knowledge of the phenotypic effect of any particular **MMP13** HTS or HP, (M1) provides the scientist with a tool to identify lead compounds that are more likely to show efficacy in clinical trials.

Dwg.0/5

FS

CPI

FA

AB; DCN

MC

CPI: B04-C01; B04-E03E; **B04-E05**; B04-G01; B04-G21; B04-N02A; B04-P0100E; B11-C08; B11-C08E3; B11-C08E5; B11-C08F1; B11-C08F3; **B12-K04E**; **B12-K04F**; B14-C03; B14-H01; B14-S03; D05-H09; D05-H11A; D05-H12A; **D05-H12D1**; D05-H16A

TECH

UPTX: 20020409

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Polynucleotide: (I) is a DNA molecule and comprises both S1 or S2 and their complement, and further comprises expression regulatory elements operably linked to S1. Preferred Method: In (M1), the determining step comprises identifying the phased sequence of nucleotides present at each of PS1-18 on the one copy

or both copies of the individual's **MMP13** gene. In (M1) and (M2), the determining comprises:

- (a) isolating from the individual a nucleic acid mixture comprising only one of the two copies (or both copies) of **MMP13** gene, or their fragment that are present in the individual;
- (b) amplifying from the nucleic acid mixture a target region containing the selected PS;
- (c) hybridizing a primer extension oligonucleotide to one allele of the amplified target region;
- (d) performing a nucleic acid template-dependent, primer extension reaction on the hybridized genotyping oligonucleotide in the presence of at least two different terminators of the reactions, where terminators are complementary to the alternative nucleotides present at the selected polymorphic site; and
- (e) detecting the presence and identity of the terminator in the extended genotyping oligonucleotide.

In (M4), the trait is a clinical response to a drug targeting **MMP13** gene.

Preferred Composition: The genotyping oligonucleotide is an ASO that specifically hybridizes to an allele of **MMP13** gene at a region containing the polymorphic site, where the ASO comprises a nucleotide sequence (S4) of 18 sequence of defined base pairs as given in the specification such as AGTGACTRGGAGGTG, TTCCCTCKAACTCTT, the complements of (S4); or a sequence from 36 sequence of defined base pairs as given in the specification such as CCTTCAAGTGACTRG, GGTTCCTCACTTCCYA, or the genotyping oligonucleotide is a primer-extension oligonucleotide which comprises a nucleotide sequence from 36 sequence of defined base pairs as given in the specification such as TCAAGTGACT, TTCCACTTCC, GTTTTCCTC.

#### ABEX

WIDER DISCLOSURE - Also disclosed are:

- (1) a recombinant expression vector (REV) comprising (I);
- (2) a host cell transformed or transfected with REV, where the vector and host cell are useful to express **MMP13** for protein structure analysis and drug binding studies;
- (3) determining the frequency of **MMP13** genotype, haplotype, or haplotype pair in a population, where the frequency data obtained by the method is useful for identifying an association between trait and **MMP13** genotype, haplotype or haplotype pair;
- (4) frequency data for **MMP13** genotypes, HTS, and/or HP determined in reference population and used for identifying an association between trait and **MMP13** genotype, HTS or HP; and
- (5) pharmaceutical composition comprising antisense oligonucleotide directed against one of the novel **MMP13** isogenes, a polynucleotide encoding such an antisense oligonucleotide, or another compound which inhibits expression of a novel **MMP13** isogene.

ADMINISTRATION - (I) is delivered by expression from a vector introduced into the cell or tissue in vivo or ex vivo. The pharmaceutical composition comprising (I) is administered through oral, intravenous, intramuscular, intraarterial, intramedullary, intrathecal, intraventricular, intradermal, transdermal, subcutaneous, intraperitoneal, intranasal, enteral, topical, sublingual or rectal routes. No dosage detail is given.

EXAMPLE - The target regions of matrix metalloproteinase 13 (collagenase 3) (**MMP13**) gene which include 15 fragments were amplified using forward (FP) and reverse primers (RP) having a sequence derived a sequence (S1) of 11495, 3364 and 7121 bp as given in specification such as nucleotide from 3395-3417, complement of 4064-4042; 3763-3784 complement of 4425-4402; 3799-3821, complement of 4346-4324; 452-4072, complement of 4783-4760; 4753-4778, complement of 5542-5521. Polymerase chain reaction (PCR) products of the 15 fragments, were then purified and analyzed for polymorphic sites using Polyphred program Nickerson et al., Nucleic Acids Res. 14:2745-2751, 1997. There were 18 novel polymorphic sites in **MMP13**

gene which corresponded to the following nucleotide positions: 3915 (PS1), 4437 (PS2), 5008 (PS3), 5037 (PS4), 5102 (PS5), 5290 (PS6), 5363 (PS7), 5628 (PS8), 7721 (PS9), 10537 (PS10), 11663 (PS11), 11752 (PS12), 14059 (PS13), 14072 (PS14), 18295 (PS15), 18407 (PS16), 18609 (PS17) and 18866 (PS18).

L151 ANSWER 2 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 2001-615405 [71] WPIX

CR 2001-015003 [66]

DNN N2001-458998 DNC C2001-184222

TI Test kit for monitoring the course and treatment of periodontal disease or peri-implantitis by assaying for mammalian **matrix metalloproteinase 13**.

DC B04 D16 S03

IN GOLUB, L M; SORSA, T; TERONEN, O; TIKANOJA, S H

PA (MEDI-N) MEDIX BIOCHEMICA; (UINY) UNIV NEW YORK STATE RES FOUND

CYC 1

PI US 6280687 B1 20010828 (200171)\* 23p G01N021-00

ADT US 6280687 B1 Div ex US 1998-133887 19980813, US 2000-642380 20000821

FDT US 6280687 B1 Div ex US 6143506

PRAI US 1998-133887 19980813; US 2000-642380 20000821

IC ICM G01N021-00

AB US 6280687 B UPAB: 20011203

NOVELTY - Test kit for monitoring the course and treatment of periodontal disease or peri-implantitis comprises assaying for metalloproteinase 13, is new.

DETAILED DESCRIPTION - Test kit for monitoring the course and treatment of periodontal disease or peri-implantitis comprises:

(a) a detectable label;

(b) a molecule that specifically recognizes mammalian **matrix metalloproteinase 13 (MMP-13)** in

gingival crevicular fluid, peri-implant sucular fluid, saliva or mouthrinse samples; and

(c) either:

(i) a stimulant of saliva excretion;

(ii) a solid absorbent site-specific sampling device; or

(iii) a mouthrinse vial.

USE - For monitoring the course and treatment of periodontal disease or peri-implantitis, including AIDS-related periodontal disease.

Dwg.0/7

FS CPI EPI

FA AB; DCN

MC CPI: B04-B04G; B04-B04L; B04-L01; B11-C06; B11-C07A; B11-C08C; B11-C08D2; B11-C08E; B11-C08E3; **B12-K04A; D05-H09**

EPI: S03-E04E; S03-E06; S03-E14H4; S03-E14H5

TECH UPTX: 20011203

TECHNOLOGY FOCUS - BIOTECHNOLOGY - Preferred Kit: The **MMP-13**-recognizing molecule is a mono- or polyclonal antibody or antibody fragment and the kit can include a second antibody or antibody fragment reactive with another **MMP-13** epitope. The label is direct or indirect and is suitable for an assay format selected from immunochromatography (especially lateral flow immunochromatography), immunometry, radioimmunoassay, radioimmunometry, enzyme immunoassay, fluoroimmunoassay, luminescence immunoassay, immunoagglutination, hemagglutination, agglutination inhibition, turbidimetric immunoassay and nephelometric immunoassay, especially a flow-through assay format. The kit can also include solid or liquid carriers and/or a molecule that recognizes mammalian matrix metalloproteinase 8 (MMP-8).

ABEX

EXAMPLE - No relevant examples are given.

L151 ANSWER 3 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 2001-015003 [02] WPIX

CR 2001-615405 [57]  
DNN N2001-011320 DNC C2001-003990  
TI Monitoring the course and treatment of periodontal disease or peri-implantitis comprises detecting increased **matrix metalloproteinase-13** levels.  
DC B04 D16 D21 S03  
IN GOLUB, L M; SORSA, T; TERONEN, O; TIKANOJA, S H  
PA (UYN) UNIV NEW YORK STATE RES FOUND  
CYC 1  
PI US 6143506 A 20001107 (200102)\* 23p G01N033-53  
ADT US 6143506 A US 1998-133887 19980813  
PRAI US 1998-133887 19980813  
IC ICM G01N033-53  
AB US 6143506 A UPAB: 20011206  
NOVELTY - A method for monitoring the course and treatment of periodontal disease or peri-implantitis comprising collecting a gingival crevicular fluid, peri-implant sulcular fluid, saliva or mouthrinse sample, contacting with a reagent recognizing mammalian **matrix metalloproteinase-13 (MMP-13)**, and detecting **MMP-13**, is new. An increased level of **MMP-13** indicates periodontal disease or peri-implantitis.  
USE - The method is useful for monitoring the course and treatment of periodontal disease or peri-implantitis, e.g. periodontal disease associated with human immunodeficiency virus (HIV) infection.  
ADVANTAGE - **MMP-13** is directly related to bone resorption associated with periodontal disease or peri-implantitis.  
Dwg.0/7  
FS CPI EPI  
FA AB; DCN  
MC CPI: B04-B04G; B04-B04L; B04-G03; B04-G21; B04-G22; B04-L05C; B11-C07A; B12-K04A; D05-H09; D05-H11; D08-A  
EPI: S03-E14H4  
TECH UPTX: 20010110  
TECHNOLOGY FOCUS - BIOLOGY - Preferred Method: The reagent is a labeled monoclonal or polyclonal antibody or antibody fragment directed against human **MMP-13**.  
ABEX  
EXAMPLE - Peri-implant sulcular fluid (PISF) samples were collected with filter paper strips from peri-implant margins of dental implants surrounded or affected with varying degrees of radiologically detected vertical bone resorption. Bone resorption grade 1 indicated less than 1 mm vertical bone resorption. Bone resorption grade 2 indicated vertical bone resorption between 1-2 mm. Bone resorption grade 3 indicated vertical bone resorption of more than 3 mm. In each bone resorption group n=10. In determining the radiologically detected bone loss the junction area of distance and fixture of inserted dental implant was used as a reference. Gingival index (GI) of peri-implant soft tissues was determined according to the principle of Loe H, (Gingival index (GI), the plaque index and the retention index system. The soft peri-implant mucosal tissue, peri-implant radiographs and the collected PISF samples were analyzed for GI, radiologically detectable bone loss, elastase activities and MMP-13 immunoreactivities using a specific antibody with quantitative immunoblot analysis. The results showed that the GI of the peri-implant mucosa increased in relation to the radiologically detected bone resorption score of the studied dental implants. However, this finding was not statistically significant. Thus, there was a rather weak relation between the severity of the peri-implant mucosal inflammation and irreversible bone resorption of the dental implants. Sixty Clinical indices of peri-implant mucositis were not sensitive enough to express the underlying irreversible bone resorption of dental implant affected by peri-implantitis. Neutrophil elastase activity (a biochemical marker of periodontal inflammation) in PISF did not correlate at all with bone

resorption scores. There was less elastase activity in the group with a bone resorption score of 2 as compared with the group with a bone resorption score of 1, and slightly increased elastase activities were detected in the group with the bone resorption score of 3 as compared with the groups with bone resorption scores of 1 and 2. However, none of these observed differences were statistically significant. This indicated that neutrophil derived biochemical markers in PISF did not reflect clearly enough the irreversible bone resorption associated with clinical loosening of dental implants affected by on-going peri-implantitis. The levels of the MMP-13 immunoreactivities correlated clearly and statistically significantly with the increasing score of bone resorption in the studied dental implants. This suggested that a MMP-family-member evidently produced by adjacent bone cells reflected and to a great extent was responsible for the irreversible peri-implant bone destruction leading to the loss of dental implants.

L151 ANSWER 4 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 2000-619788 [60] WPIX

DNC C2000-185827

TI Use of **collagenase 3** as prognostic indicator of destructive joint disease, specifically rheumatoid arthritis, and for detecting genetic predispositions.

DC B04 D16

IN **FREUDIGER, D; GROMNICA-IHLE, E; SCHULZE WESTHOFF, C; WERNICKE, D**

PA (DELB-N) DELBRUECK CENT MOLEKULARE MEDIZIN MAX

CYC 4

PI DE 19913428 A1 20000928 (200060)\* 9p C12Q001-34 <--  
WO 2000058502 A2 20001005 (200060) DE C12Q001-00 <--

RW: EA

W: JP US

ADT DE 19913428 A1 DE 1999-19913428 19990325; WO 2000058502 A2 WO 2000-DE881 20000324

PRAI DE 1999-19913428 19990325

IC ICM **C12Q001-00; C12Q001-34**

ICS A61K048-00

AB DE 19913428 A UPAB: 20001123

NOVELTY - Use of **collagenase 3** (I) as prognostic clinical marker of destructive joint disease, is new.

MECHANISM OF ACTION - (I) is implicated in progressive damage to cartilage and bone. It has high catalytic activity against type II collagen (the major collagen of hyaline cartilage) and also degrades many other components of the extracellular matrix. It is only detected in human tissue under pathological conditions.

USE - Measurement of (I) is used for prognosis of the progression of rheumatoid arthritis (RA) and to determine genetic predispositions to developing RA.

ADVANTAGE - Detection of (I) allows early diagnosis of the active phase of disease.

Dwg.0/3

FS CPI

FA AB; DCN

MC CPI: B04-B03C; B04-B04C2; B04-B04L; B04-C01; B04-E03E; **B04-E05;**  
B04-F02; B04-G03; B04-L05; B04-N02; B11-A02; B11-C07A4; B11-C08E;  
B11-C09; **B12-K04A3; B12-K04E; B12-K04F;**  
D05-A01A4; D05-A01B; D05-A02C; D05-H07; D05-H08; **D05-H09;**  
D05-H10; D05-H11; D05-H12A; **D05-H12D1;** D05-H18

TECH UPTX: 20001123

TECHNOLOGY FOCUS - BIOLOGY - Preferred method: This involves quantitative and qualitative measurement of:

- (1) expression of mRNA for (I), e.g. by reverse-transcription polymerase chain reaction, Northern blotting or in situ hybridization;
- (2) (I) as an antigen, either the proenzyme or the active form, e.g. by

Western blotting or other immunoassays;  
 (3) the catalytic activity of (I), especially by zymography; and/or  
 (4) the ratio between (I) and its (non-)specific inhibitors, by  
 determining both free (I) and inhibitor-bound (I), as in (2).  
 Analysis is performed on tissue samples, e.g. synovial membrane, cartilage  
 or bone, or material from the synovial membrane/cartilage junction region  
 (obtained e.g. by synovectomy, joint replacement and/or biopsy) or on body  
 fluid samples, especially synovial fluid or blood. The clinical  
 significance of the method may be increased by measuring additional  
 markers, e.g. HLA (human leucocyte antigens), for detecting severe  
 progression of rheumatoid arthritis, or a particular HLA pattern, for  
 detecting genetic predisposition. Optionally measurements are also made  
 for membrane type I matrix metalloprotease and/or gelatinase A.

ABEX

EXAMPLE - 36 patients with confirmed rheumatoid arthritis (RA), in the  
 joints of the hands, underwent synovectomy and the surgically removed  
 material was analyzed for mRNA by Northern blotting. 21 patients expressed  
 mRNA (I) for collagenase 3, in almost all cases together with mRNA for  
 membrane type I matrix metalloprotease and/or gelatinase A. Patients who  
 expressed (I) had significantly higher levels of the inflammatory markers  
 BSG and CRP and also required surgery after a shorter period, indicating a  
 more severe progression of disease and/or poorer response to therapy.  
 There were no significant differences between expressers and  
 non-expressors of (I) as regards the level of rheuma factor or  
 differential blood profiles.

L151 ANSWER 5 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 1998-388138 [33] WPIX

DNN N1998-302581 DNC C1998-117544

TI Monoclonal antibodies for separate assays of latent and active  
**collagenase-3** - useful for diagnosis of rheumatoid  
 arthritis and other inflammatory diseases.

DC B04 D16 S03

IN AZUMANO, I; IWATA, K; LOPEZ-OTIN, C; TAMEI, H; YOSHIDA, S

PA (FUJY) FUJI YAKUHHIN KOGYO KK

CYC 19

PI WO 9829560 A1 19980709 (199833)\* JA 64p C12P021-08

RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
 W: JP US

ADT JP 10529865 X 20000516 (200034) C12P021-08  
 WO 9829560 A1 WO 1997-JP4884 19971226; JP 10529865 X WO 1997-JP4884  
 19971226, JP 1998-529865 19971226

FDT JP 10529865 X Based on WO 9829560

PRAI JP 1996-356444 19961226

IC ICM C12P021-08

ICS C07K016-40; G01N033-577

AB WO 9829560 A UPAB: 19980819

Monoclonal antibodies which react with all or part of the peptide sequence  
 of **matrix metalloproteinase 13 (MMP-13)** (collagenase-3) are of three types  
 which react respectively with:

(1) the active form of **MMP-13**; (2) the latent  
 form of **MMP-13**, and

(3) both the active and latent forms.

The antibodies are obtained by immunising animals using **MMP-13** or its partial peptides as an antigen and fusing spleen  
 cells with myeloma cells to give hybridomas, which are screened for the  
 required activity, the antibody is then purified from the hybridoma  
 culture.

USE - The method is useful for the detection and immunoassay of  
 active and/or latent **MMP-13** in biological samples such  
 as blood, urine, synovial fluid, cerebrospinal fluid or amniotic fluid  
 (e.g. by ELISA assay) and for the diagnosis of various types of

inflammatory and neoplastic diseases, such as chronic rheumatoid arthritis and breast cancer.

Dwg.0/8

FS CPI EPI

FA AB

MC CPI: B04-B04B1; B04-B04D5; B04-B04H; B04-G21; B04-N02; B11-C07;

**B12-K04A**; D05-A02C; **D05-H09**; D05-H11A1

EPI: S03-E14H4

L151 ANSWER 6 OF 6 WPIX (C) 2002 THOMSON DERWENT

AN 1996-334618 [34] WPIX

DNC C1996-105718

TI Agent for treating rheumatic diseases esp. arthritis - comprises making **collagenase-3** ineffective, e.g. by inhibiting gene expression, inhibiting activation, inhibiting the enzyme, or inducing natural inhibitors.

DC B04 B05

IN **WERNICKE, D**

PA (DELB-N) DELBRUECK CENT MOLEKULARE MEDIZIN MAX

CYC 1

PI DE 19501032 A1 19960718 (199634)\* 3p A61K038-55

ADT DE 19501032 A1 DE 1995-19501032 19950114

PRAI DE 1995-19501032 19950114

IC ICM A61K038-55

ICS A61K038-19

AB DE 19501032 A UPAB: 19960829

Agent for treatment of rheumatic diseases makes the matrixmetalloprotease **collagenase-3** of the disease ineffective, opt. combined with inhibition of other matrix metalloproteases.

USE - The agent is useful esp. for treating diseases associated with joint destruction such as chronic polyarthritis and osteoarthritis.

Dwg.0/0

FS CPI

FA AB; DCN

MC CPI: B02-T; B03-A; B04-B03C; B04-E06; B04-H02; B04-H06G; B04-H09; B04-N02; B14-C09; B14-D07C; B14-H01

=> d his

(FILE 'HOME' ENTERED AT 15:12:16 ON 13 NOV 2002)  
SET COST OFF

FILE 'REGISTRY' ENTERED AT 15:12:27 ON 13 NOV 2002  
E COLLAGENASE/CN

L1 1 S E74

L2 24 S COLLAGENASE 3 NOT L1  
E GELATINASE/CN

L3 1 S E16  
E MTI/CN

FILE 'HCAPLUS' ENTERED AT 15:14:40 ON 13 NOV 2002

L4 616 S L1

L5 35 S L2

L6 377 S COLLAGENASE() (3 OR III OR TYPE() (3 OR III))

L7 561 S (MMP OR MATRIX() (METALLOPROTEINASE OR METALLOPROTEASE OR META

L8 78 S MMP13

L9 774 S L4-L8

E RHEUMATOID ARTHRITIS/CT

L10 227 S E4,E5

E E3+ALL

L11 9884 S E10,E11,E9+NT



L12 425 S E12-E17/BI  
 L13 15572 S E9/BI  
     E JOINT/CT  
     E E6+ALL  
 L14 8492 S E6,E5+NT  
 L15 7007 S E11,E13/BI  
     E E13+ALL  
 L16 2421 S E2+NT  
 L17 464 S E3,E4/BI  
     E CARTILAGE/CT  
 L18 3503 S E4-E20  
     E E3+ALL  
 L19 13998 S E7+NT  
 L20 19822 S CARTILAG?  
     E BIOPSY  
 L21 22874 S E3  
     E BIOPSY/CT  
     E PROSTHES/CT  
     E E18+ALL  
 L22 23437 S E5,E4+NT  
 L23 28060 S E6-E11/BI  
     E PROSTHES/CT  
     E E16+ALL  
 L24 1598 S ARTIFICIAL(L) JOINT  
 L25 248 S L9 AND L10-L24  
 L26 238 S L9 AND ?ARTHRIT?  
 L27 304 S L25,L26  
     E WERNICKE D/AU  
 L28 13 S E3,E5  
     E GROMNICA E/AU  
 L29 16 S E4-E7  
     E IHLE E/AU  
 L30 1 S E3  
     E FREUDIGER D/AU  
 L31 2 S E4  
     E SCHULZE C/AU  
 L32 41 S E3-E6,E19  
     E SCHULZE WESTHOFF/AU  
 L33 2 S E4  
     E WESTHOFF C/AU  
 L34 3 S E3,E5,E7  
 L35 6 S L9 AND L28-L34  
 L36 6 S L27 AND L35  
 L37 115 S L9 AND ?RHEUMAT?  
 L38 6 S L27 AND L36  
 L39 6 S L36,L38  
 L40 303 S L27,L37 NOT L39

FILE 'REGISTRY' ENTERED AT 15:27:58 ON 13 NOV 2002

L41 1 S 161384-17-4

FILE 'HCAPLUS' ENTERED AT 15:28:36 ON 13 NOV 2002

L42 624 S L41  
 L43 520 S MT1 MMP OR MT MMP1  
 L44 97 S MT MMP 1  
 L45 745 S L42-L44  
 L46 3029 S L3  
 L47 1448 S GELATINASE A  
 L48 3070 S (MMP OR MATRIX()) (METALLOPROTEINASE OR METALLOPROTEASE OR META  
 L49 641 S MMP2  
 L50 4043 S L46-L49  
 L51 36 S L40 AND L45  
 L52 94 S L40 AND L50

L53 102 S L51,L52  
 L54 87 S L40 AND (MRNA OR RNA OR ANTIGEN? OR HLA(L)ANTIGEN?)  
 L55 167 S L53,L54  
     E MRNA/CT  
     E E3+ALL  
 L56 38 S L40 AND E6,E7,E5+NT  
 L57 41 S L40 AND E4+NT  
 L58 50 S L40 AND E3+NT  
     E E3+ALL  
 L59 50 S L56-L58  
 L60 43 S L55 AND L59  
 L61 46 S L9 AND CONNECTIVE TISSUE  
 L62 25 S L61 AND L45,L50  
 L63 64 S L60,L62  
 L64 20 S L9 (L) (ANT OR ANST)/RL  
 L65 130 S L9 (L) (BOC OR OCCU)/RL  
 L66 39 S L64,L65 AND L55  
 L67 7 S L64,L65 AND L61  
 L68 23 S L64,L65 AND L63  
 L69 50 S L36,L66-L68  
     E SUSCEPTIBILITY/CT  
     E E5+ALL  
 L70 9331 S E4,E3  
 L71 173123 S E5-E8/BI  
     E E2+ALL  
 L72 9030 S E1  
 L73 27605 S E6+NT OR E7+NT  
     E GENETIC INHERITANCE/CT  
     E E3+ALL  
 L74 30 S L9 AND L70-L73  
 L75 4 S L74 AND L69  
 L76 26 S L74 NOT L75  
     SEL DN AN 13  
 L77 1 S L76 AND E1-E3  
 L78 7 S L39,L77  
 L79 6 S L69 AND L78  
 L80 44 S L69 NOT L79  
     SEL DN AN L80 2 11 13 15 18 19 21 22 24 33 34 36 39 40 42 43 44  
 L81 17 S E4-E54  
 L82 24 S L78,L81  
 L83 4 S L9 AND L10  
 L84 83 S L9 AND L11  
 L85 3 S L9 AND L12  
 L86 100 S L9 AND L13  
 L87 245 S L9 AND (?RHEUMAT? OR ?ARTHRIT?)  
 L88 18 S L82 AND L83-L87  
 L89 24 S L82,L88  
 L90 227 S L83-L87 NOT L89  
 L91 23 S L90 AND L45  
 L92 68 S L90 AND L50  
 L93 73 S L91,L92  
 L94 8 S L93 AND (PROGNO? OR PREDISPOS? OR PREDICT? OR DIAGNO? OR DETE  
     SEL DN AN 5-8  
 L95 4 S L94 NOT E55-E66  
 L96 28 S L89,L95  
 L97 28 S L96 AND (MMP? OR ?METALLOPROTEASE? OR ?METALLOPROTEINASE? OR  
 L98 28 S L96 AND L4-L40,L42-L97  
     SEL HIT RN

L99 FILE 'REGISTRY' ENTERED AT 16:27:04 ON 13 NOV 2002  
     5 S E67-E71

FILE 'REGISTRY' ENTERED AT 16:27:29 ON 13 NOV 2002

FILE 'HCAPLUS' ENTERED AT 16:27:36 ON 13 NOV 2002

FILE 'MEDLINE' ENTERED AT 16:38:35 ON 13 NOV 2002

L100 520 S L9  
E COLLAGENASE/CT  
E E12+ALL  
L101 11496 S E11+NT  
L102 384 S L100 AND L101  
L103 520 S L100,L102  
E RHEUMATOID ARTHRITIS/CT  
E E3+ALL  
E E2+ALL  
L104 63530 S E14+NT  
L105 162814 S E12+NT  
L106 229274 S E6+NT  
E SYNOV/CT  
E E44+ALL  
L107 16369 S E9+NT  
L108 101134 S E7+NT  
L109 113 S L103 AND L104-L108  
L110 161 S A2./CT AND L103  
L111 104 S C5./CT AND L103  
L112 196 S L109-L111  
L113 39 S E1./CT AND L112  
L114 0 S DI/CT AND L112  
L115 4 S PC/CT AND L112  
E PROGNOSIS/CT  
E E3+ALL  
L116 1 S L113 AND E3+NT  
L117 7 S L113 AND L104  
L118 2 S L117 AND (D13. OR G5.)/CT  
L119 7 S L117 AND E5./CT  
L120 7 S L117-L119

FILE 'MEDLINE' ENTERED AT 16:47:18 ON 13 NOV 2002

FILE 'BIOSIS' ENTERED AT 16:47:28 ON 13 NOV 2002

L121 677 S L9  
L122 5 S 12504/CC AND L121  
SEL DN AN 3  
L123 1 S L122 AND E1-E2  
L124 110 S 18006/CC AND L121  
L125 1 S L122 AND L124  
L126 1 S L123,L125

FILE 'BIOSIS' ENTERED AT 16:49:55 ON 13 NOV 2002

L127 107 S L121 AND (10052 OR 10062)/CC  
L128 21 S L127 AND L124  
L129 44 S L127 AND 1800?/CC  
L130 44 S L128,L129 NOT L126  
L131 20 S L130 AND PY<=2000  
L132 3 S L131 NOT AB/FA  
L133 17 S L131 NOT L132  
SEL DN AN 4-7 9 11 13 17  
L134 9 S L133 NOT E3-E18  
L135 7 S L134 AND ?ARTHRIT?  
L136 4 S L134 AND ?RHEUMAT?  
L137 9 S L134-L136 NOT L126

FILE 'WPIX' ENTERED AT 16:53:32 ON 13 NOV 2002

L138 112 S L6 OR L7 OR L8  
E WERNICKE D/AU

L139 3 S E3  
E GROMNICA/AU  
L140 1 S E4  
E IHLE/AU  
L141 20 S E7,E9  
E FREUDIGER D/AU  
L142 1 S E3  
E SCHULZE C/AU  
L143 52 S E3  
E SCHULZE W/AU  
L144 226 S E3  
L145 1 S E12  
E WESTHOFF/AU  
L146 2 S L138 AND L139-L145  
L147 3 S C12Q/IC,ICM,ICS,ICA,ICI AND L138  
L148 12 S L138 AND (B04-E05 OR C04-E05 OR B04-B04A1 OR C04-B04A1 OR B12  
L149 11 S L138 AND (D05-H09 OR D05-H12D1 OR D05-H12)/MC  
L150 13 S L146-L149  
SEL DN AN 1 3 4 6 7 10 13  
L151 6 S L150 NOT E1-E18  
L152 99 S L138 NOT L139-L151

FILE 'WPIX' ENTERED AT 17:08:54 ON 13 NOV 2002